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# Table of Contents

**Foreword**

Dr. Narimane Hadj-Hamou  Assistant Chancellor for Academic Development and Congress Chair 6

**Scientific Papers** 7

Technologically-Enhanced Open and Distance Learning for All in Developing Countries 8

Cosmas B.F. Mnyanyi 8

Jabiti K. Bakari 8

Tolly S. A. Mbwette 8

Using Wikis for Collaborative Learning: A Case Study for Evaluating Students’ Group Writing 18

Said Hadjerrouit 18

The Classroom Practices of Critical Language Teachers 29

El Moctar Ould Hende 29

The Use of Free, Libre and Open Source Software (FLOSS) for African Higher Education Advancement and Development 41

Mikko Ruohonen 41

Nicholas Mavengere 41

Paul Nleya 41

Swanand Deodhar 41

Telecentres and Telecentre Academies: The Effective Tools for Re-Engineering Education 53

Ahmed Mahmoud Mohamed Eisa 53

The Role of the e-Learning Manager in Re-Engineering Educational Paradigms 63

Megan Hastie 63

Nian-Shing Chen 63

Advantages of Using Technology in Teaching Geosciences: Case Study of Structural Geology, KFUPM, Saudi Arabia 76

Mustafa M. Hariri 76

The Ability of Social Networks to Enhance Student Feedback Mechanism 85

Ahmad Alghamdi 85

Jason Watson 85

Mohd. Hafiz Zakaria 85

Using eTextile for Game-based Learning in the UAE 102

Imran A. Zualkernan 102

Medical English m-Learning: Positioning a New Paradigm in e-Education 119

Jafar Asgari Arani 119

Quality Assurance and OERs in Online Courseware Development and Delivery 126

Mohammad Issack SANTALLY 126
Peer Preview and Review in Teaching of Rhetoric & e-Learning .......................... 134
Zofia Reid ................................................................. 134

Knowledge Management and e-Learning: Strategies for Delivering Knowledge in the Higher Education – A Case Study of e-Learning in a Corporate Setting in the Arab World ............................................. 144
Khalid Alrawi .................................................................. 144
Farid Nabti ...................................................................... 144
Maher Ibrahim .................................................................. 144

Software Copyright Infringement: Causes, Forms and Effects .................................. 153
Wadha Al Nafjan ............................................................. 153
Murtaza Ali Khan ........................................................... 153

Managing 21st Century Quality Teacher Education in Developing Countries: Prospects and Challenges .............................................................. 161
Cosmas B. F. Mnyanyi .................................................... 161
Tolly S. A. Mbwette .......................................................... 161

Prospects and Challenges of m-Learning in Open and Distance Learning in Developing Countries ........................................................................ 170
Cosmas B. F. Mnyanyi .................................................... 170
Tolly S. A. Mbwette .......................................................... 170
Jabiri K. Bakari .............................................................. 170

Sid Ahmed Benraouane .................................................... 179

Forecasting Education and Learning in 2030: Discussing a French Perspective ........ 187
Eric Bruillard .................................................................. 187
Michaël Huchette ............................................................ 187
Georges-Louis Baron ....................................................... 187

Maintaining Contact: Informal Learning through Long Distance Social Network ..... 199
Shamma Al Naqbi ............................................................ 199
Nicholas Reynolds .......................................................... 199

Effectiveness of Distance Education for Women in the Arab World ....................... 209
Khitam Azaiza ............................................................... 209

ICT-Enabled Education for Sustainable Development: Merging Theory with Praxis 223
Vassilios Makrakis .......................................................... 223

Education 2.0: Developing Corporate Social Media Policies for Higher Educational Institutions ................................................................. 233
Elbadawi, Ibrahim .......................................................... 233

The Integritas System to Enforce Integrity in Academic Environments .................... 242
Basie Von Solms ............................................................ 242
Jako du Toit ................................................................. 242
<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-Learning: Key Issues of Effectiveness and Employability – An International Perspective</td>
<td>251</td>
</tr>
<tr>
<td>S. Manikandan</td>
<td>251</td>
</tr>
<tr>
<td>Effectiveness of Online Collaboration Technologies at Workplace in Fostering Teamwork and Improving Work Performance</td>
<td>261</td>
</tr>
<tr>
<td>Parthasarathy, V</td>
<td>261</td>
</tr>
<tr>
<td>Can Anyone and Everyone Teach? A Closer Look at Challenges of Learning, Teaching and Standards in Contemporary Times</td>
<td>270</td>
</tr>
<tr>
<td>Ebere Asinobi-Iroadu</td>
<td>270</td>
</tr>
<tr>
<td>Bridging Digital Divide: A Step towards Excellence in Research</td>
<td>286</td>
</tr>
<tr>
<td>Muhammad Safdar</td>
<td>286</td>
</tr>
<tr>
<td>N. B. Jumanil</td>
<td>286</td>
</tr>
<tr>
<td>Muhammad Abdul Malik</td>
<td>286</td>
</tr>
<tr>
<td>Technologies for Learners’ Empowerment</td>
<td>294</td>
</tr>
<tr>
<td>Nabil Eid</td>
<td>294</td>
</tr>
<tr>
<td>Guidance for Sustainable Higher Education Web Services</td>
<td>309</td>
</tr>
<tr>
<td>Adnan M. Okour</td>
<td>309</td>
</tr>
<tr>
<td>Zahi K. Yaseen</td>
<td>309</td>
</tr>
<tr>
<td>The TURMaC Model for Management of an e-Learning System: A Result of Experience at an Undergraduate College in Dubai in the United Arab Emirates</td>
<td>320</td>
</tr>
<tr>
<td>Syed Kabir Nasir</td>
<td>320</td>
</tr>
<tr>
<td>Syeda Shahla Kabir</td>
<td>320</td>
</tr>
<tr>
<td>The Integrated Learning and Certification Space: An IT-based Structure to Improve the Success of Students at the University of Réunion Island</td>
<td>331</td>
</tr>
<tr>
<td>Oliver Sebastien</td>
<td>331</td>
</tr>
<tr>
<td>Mamy Haja Rakotobe</td>
<td>331</td>
</tr>
<tr>
<td>Automated Feedback to Facilitate the Understanding of Filmed Best Practices</td>
<td>339</td>
</tr>
<tr>
<td>Herald Kjellin</td>
<td>339</td>
</tr>
<tr>
<td>Meshari M. S. Alwazae</td>
<td>339</td>
</tr>
<tr>
<td>Collaborative Learning Environment – A Moodle Case Study!</td>
<td>348</td>
</tr>
<tr>
<td>Hurbungs Visham</td>
<td>348</td>
</tr>
<tr>
<td>Remote and Open Laboratory in Science Education: Technological, Educational and Psychological Issues</td>
<td>354</td>
</tr>
<tr>
<td>Zdena Lustigova</td>
<td>354</td>
</tr>
<tr>
<td>Transmitting and Sharing Know-How through Sign Management: An Application to Semiotic Annotation of Music Pieces</td>
<td>361</td>
</tr>
<tr>
<td>Noël Conruyt</td>
<td>361</td>
</tr>
<tr>
<td>Véronique Sébastien</td>
<td>361</td>
</tr>
<tr>
<td>Olivier Sébastien</td>
<td>361</td>
</tr>
<tr>
<td>Processing and Analysing Assessment Test Logs Provided by Digital Pen and Paper</td>
<td>373</td>
</tr>
<tr>
<td>Zaara Barhoumi</td>
<td>373</td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Arab World Universities’ Websites: A Quality Perspective Case Study</td>
<td>387</td>
</tr>
<tr>
<td>Mohamed Khalifa</td>
<td>387</td>
</tr>
<tr>
<td>Hamed M. Sallam</td>
<td>387</td>
</tr>
<tr>
<td>International Avatar Collaboration and Student Learning in Immersive Worlds</td>
<td>399</td>
</tr>
<tr>
<td>Catherine Demangeot</td>
<td>399</td>
</tr>
<tr>
<td>Considerations for the Adoption of Mobile Learning (m-Learning) at the University of Mauritius</td>
<td>410</td>
</tr>
<tr>
<td>Sungkar Roopesh Kevin</td>
<td>410</td>
</tr>
<tr>
<td>Ramsurrun Sandeep</td>
<td>410</td>
</tr>
<tr>
<td>Hasowa Nitish</td>
<td>410</td>
</tr>
<tr>
<td>Ubiquitous Project Management Using Interactive Virtual 3D Worlds</td>
<td>421</td>
</tr>
<tr>
<td>Marcus Birkenkrahe</td>
<td>421</td>
</tr>
<tr>
<td>Antje Gallo</td>
<td>421</td>
</tr>
<tr>
<td>Frank Habermann</td>
<td>421</td>
</tr>
<tr>
<td>Bastian Hagmaier</td>
<td>421</td>
</tr>
<tr>
<td>Stefanie Quade</td>
<td>421</td>
</tr>
<tr>
<td>Instructor and Student Attitudes towards e-Learning Systems</td>
<td>437</td>
</tr>
<tr>
<td>Rashed Al-Saeed</td>
<td>437</td>
</tr>
<tr>
<td>Rajmohan P.</td>
<td>437</td>
</tr>
<tr>
<td>Zahi Yaseen</td>
<td>437</td>
</tr>
<tr>
<td>Muhand Khanfer</td>
<td>437</td>
</tr>
<tr>
<td>Computer Mediated Discussions in a Language Class</td>
<td>447</td>
</tr>
<tr>
<td>Papayah Guruvadoo</td>
<td>447</td>
</tr>
<tr>
<td>Digital Learning Spaces: An Alternative to Traditional Learning Management System?</td>
<td>460</td>
</tr>
<tr>
<td>Sean Dowling</td>
<td>460</td>
</tr>
<tr>
<td>تحديات جامعة القاهرة بين التعلم عن بعد والتعلم الإلكتروني في اللغة الإسبانية و أدابها مثالاً</td>
<td>482</td>
</tr>
<tr>
<td>رشا محمد عبودى</td>
<td>482</td>
</tr>
<tr>
<td>معايير الجودة في بيئة التعلم عبر الإنترنت بمؤسسات التعليم العالي</td>
<td>504</td>
</tr>
<tr>
<td>محمود عبد السلام محمد الحافظ</td>
<td>504</td>
</tr>
<tr>
<td>التعليم الجامعي الإلكتروني: دراسة لجامعات عربية وأجنبية مختارة</td>
<td>525</td>
</tr>
<tr>
<td>بولقواس سناء</td>
<td>525</td>
</tr>
<tr>
<td>كلية الحقوق والعلوم السياسية، جامعة الحاج لخضر – باطنة</td>
<td>525</td>
</tr>
</tbody>
</table>

List of Reviewers                                                                 | 568  |
Foreword

Dr. Narimane Hadj-Hamou
Assistant Chancellor for Academic Development and Congress Chair

For policy makers around the world, finding ways to promote education is a top priority. Academics, consultants and practitioners tend to advise them that disciplined socio-economic development policies and strong institutions (given particular emphasis by UNESCO, World Bank and other multilateral organizations now-a-days) provide a framework in which education should flourish. But gathering evidence from various parts of the world to support it has been extremely difficult. What exactly academics and policy makers know and do not know about issues related to education? What direction should future research and policymaking take, particularly in the Arab World is certainly an interesting question.

The research articles presented in this volume of proceedings address a wide range of issues and questions. They also provide useful evidence on which policies can be based. The articles were reviewed by a technical committee formed by the conference chair. The committee included experts from various parts of the world. The coverage of issues and questions in various research papers is impressive. I believe, the papers would lead to an illuminating discussion at the conference sessions.

In recent years, there has been a sharper focus on education in an effort to achieve socio-economic development in the Arab states. Admittedly, considerable progress has been in the area of education in the Arab World. But the pace, depth and width of the progress made by the Arab countries in the area of education have been varied. Still we find that education has proved rather elusive to millions of people in the Arab world. E-learning has emerged as a formidable option for policy makers to spread education throughout the Arab World.

The ideas, frameworks and methodologies presented in scientific papers compiled in these proceedings, I am sure, would go a long way in influencing the education policy agenda in the Arab World.

I wish to take this opporportunity to thank Professor Alain Sentini, the Conference Chair and the Technical Committee members for reviwing a very large number of submissions for the conference. I am also thankful to Professor Mohammed Youssef and Professor Syed Anwar for compiling and editing the papers included in the proceedings.

Finally, I wish to thank the authors of the papers for addressing very interesting issues of our time. I wish the paper presenters an illuminating experience during the conference.
Technologically-Enhanced Open and Distance Learning for All in Developing Countries

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Abstract
While there is a growing demand of using technology enhanced learning in developing countries, there are still number of challenges that need to be addressed. Some of such challenges include imparting the necessary and required ICT skills to both academic and administrative staff; infrastructural barriers in terms of PCs, bandwidth and network availability and performance; economies of scales; delivery mode of learning contents; staff motivation, retention, and sustainability schemes. There is a likelihood of increasing costs to running ODL institutions because of the new demands that might ultimately compromise access to education in developing countries. This paper revisits the challenges and suggests the intervention

Keywords: Technology-enhanced learning, Open and Distance Learning, Developing Countries, ICT literacy

Introduction
The relationship that exists amongst the three concepts technology, open and distance learning, and developing counties is mutually supportive. Technology is said to support learning whereas open and distance learning is said to open up access to education to many individuals, including those with special needs and disabilities. Developing countries, on the other hand, are countries with low economies of scale. A country with low economies of scale is likely to fail to deploy and sustain learning technologies that are said to be effective in supporting access to education. It is believed that technology is likely to support both the conventional and the open and distance learning course delivery. In the era of globalisation information and communication skills (ICT) knowledge and skills can be said to indicate the level of literacy in a country.

Authors of this paper are working in open and distance learning institution in Tanzania, the Open University of Tanzania (OUT). In this case the paper has both theoretical and practical knowledge in developing countries. OUT is an equal opportunity university. Its access is open to all, including persons with disabilities. With support from David Anderson Africa Trust (DAAT) OUT started enrolling persons with special needs and disabilities, including those with visual impairment and blindness in 1997. Since then persons with disabilities are mainstreamed in both degree and non-degree courses offered by OUT. The question is how and what are the challenges resulting from the technology in supporting distance learners in accessing knowledge and skills necessary for development. In examining the technology challenges in developing countries authors conducted an empirical study and reviewed literature from Tanzania and other countries, both developed and developing countries. The review of literature aims at bringing the reader to the understanding of concepts used
and relate to what is happening in Tanzania and other developing countries.

**Use of Technology in Learning in Developing Countries**

Technology used in learning is referred to as learning technologies. The term learning technologies includes information and instructional technology, as well as telecommunications tools, applications, and systems that support learning. According to Gulati (2008) communication technologies when used in learning do overcome geographical access and barriers to learning. Gulati contents that the learning technologies that include print-materials, radio, television, video, audio, telephone, computers and the internet reach a bigger number of learners and hence allow many people to access education. In Africa and other developing countries the situation is different (Baggaley and Belawati, 2007; Zaied, Kharralla, & Al-Rashed, 2007). Baggaley and Belawati (2007) observed internet based teaching as facing many challenges in developing countries that include: lack of proper course monitoring, shortage of trained staff in instructional designs, shortage and or lack of appropriate technology, and where technologies are available they are unaffordable. With large geographical area, many of the multimedia learning tools that include telephone, internet, and television are not accessible in all places. There are possibilities for one to acquire an electronic equipment, yet, cannot use it. On the other hand Zaied, Kharralla, & Al-Rashed (2007) are of the view that where a country is ready to deploy electronic services it has to consider proper networking that would support communication among different partners. In that affordability and ability to use ICT tools in developing countries might not reduce the widening gap of knowledge and the digital divide existing.

In discussing about developing countries and learning technologies, one should not be confined by access and privilege alone. There is a need to consider other factors that are above privilege that include: geographical location, availability of bandwidth, infrastructural barrier, and research on the type of electronic gadget that might be suitable for the area in question. Researchers in the area of technology in learning indicate positive effects of the technology. Learning technologies that works in developed countries in most cases are not compatible with the developing countries environment and challenges. In terms of technology, developing countries are characterised as recipient of technology. The technology used is not made according to their local environment. In such cases the developing countries are burden bearer and the development agents for the developed nations.

With increased burden, most of developing countries are unable to develop their capacity to do research and invent technology suitable for the region. Higher hidden costs in distance education in developing countries are mainly due to technology in use. Where technology is affordable in developing countries there are infrastructural challenges and where infrastructure exists, is not affordable (Bakari, 2007; Gulati, 2008).

**Open and Distance Learning: The Concept and Practice**

Distance education has ability to open access to all. It is provided to persons of all ages and never embraces discrimination in any ground, including disability (UNESCO, 2002; Moisey, 2004). In open and distance learning, time and place are no longer constraints as it offers flexibility to learning opportunities among individuals and groups. Learners become the managers and leaders of their own learning. Learner in open and distance education decides at what time, what place and whom to participate with when studying specific content one would want (UNESCO,
Distance education eliminates factors that are believed to have hindered increasing knowledge and practical skills to many individuals that are known to be access, quality and cost. There is a belief that distance education has come up providing affordable, quality education for all (Daniel, Kanwar & Uvalic-Trumic, 2009; Daniel, 1999). Therefore, distance education is seen as the solution to providing education of good quality to many individuals at a reduced cost. Distance education is coming up with a paradigm shift which existed about relationship between quality education and cost. Some persons believe that for an institution to provide quality education has to demand high cost (Clarke-Okah, 2008) instead of the relevance of education to the individual obtaining it.

According to Guri-Rosenblit (2009) the current and future of distance education is no longer depending on national policies but in globalization. In that distance education has taken new roles to educate diverse clientele without limitation of boundaries; in this case the use of digital technology is highly embraced. The challenges of globalization are challenges that are affecting open and distance learning, these include, monitoring quality; harmonizing diversity and bridging over the digital divide (Guri-Rosenblit, 2009) and the knowledge divide (UNESCO, 2002). Digital divide and knowledge divide in developing countries is on increase, the increase is higher in Sub-Saharan Africa where there is increase in population that increases the need to expand educational provision. In Sub-Saharan Africa there are various problems affecting access to education. They include HIV/AIDS pandemic, poverty, geographical challenges, infrastructural challenges, inability to empower persons with disabilities, civil war and the attitudes toward distance education.

In developing countries open and distance education can be seen as the best option to provide education to all. However, distance education is not without challenges. Its challenges to the learners include: the level of formal education; ICT literacy; learning styles; degree of support; and relevance of course content to career interests. Also it entails the extent and nature of interaction with instructors or other students; and feedback received in coursework (Moore and Keasley, 2005; Knapper, 1988; Knowles, 1980). However, with support from different stakeholders and dedicated staff, such challenges are easier to overcome with open and distance learning as compared to conventional universities, where space, time, and infrastructural barriers become permanent challenges.

The Open University of Tanzania (OUT) started providing services to the public in 1994 (Mbwette, 2009). The OUT started providing services to individuals with special needs and disabilities including those with visual impairment in 1997. Since then the technology that is used by OUT to support learners with visual impairment have been the use of learning material recorded in audio cassettes. There are plans for OUT to form collaborations with other stakeholders to initiate training into use of ICT to persons with disabilities. In the era of globalization ICT will continue to empower persons with disabilities and provide possibilities into employment opportunities (Michailakis, 2001). The importance of teaching ICT to persons with disabilities as earmarked by OUT is because, in the current world, ICT, is everything, ranging from production, consumption and even the power to participate in the global economy (Jordan, 1999) and that learning is mediated through it. ICT skills are important for both teachers and learners in this era of knowledge economy (Brodin and Lindstrand, 2003; Nihuka, 2008).

In this paper authors conducted an empirical study to assess use of technology in open and
distance learning institution on how technology supports students learning. Focus was on developing an understanding of how ICT resources deployed for students use are benefitting all students. It is envisaged that the study will make contributions to the deepening an understanding and knowledge and skills on how to select appropriate technology and how to manage the implementation of distance education which is embraced by persons with and without special needs and disabilities.

**Method**

The study employed a qualitative research design. The data collection was through interviews, focus group discussions, and phone calls. The participants in the study included lecturers at the Open University of Tanzania (5), Non-academic staff (10), students with visual impairment (5), students with physical impairment (3), students without disabilities (20), and advanced level secondary education students (5). The 10 non-academic staff included 4 members of the Institute of Educational Technology (IET). The IET is the institute that oversees ICT services and infrastructure of OUT. Students with disabilities were included in this study for the purpose of exploring their views on use of learning technology at OUT.

The data collection method used included phone calls. Phone calls were used mostly when collecting data from students who are in regional centres. The OUT is operating in all regions in Tanzania and beyond. The coordination between OUT headquarters and regional centres is through the Regional Directors. In this study, the selection of the participants was purposively. Some of the participants who directly or indirectly participated in ICT short course training administered by IET at OUT headquarters and in the regions were selected. A sample of individuals with rich experiences in ODL technology is ideal for interview (Patton, 2001). The respondents were assured of the confidentiality, where names are to be used the pseudo names have been used.

**Results and Discussion**

The participants had qualitatively different views regarding technology usage in open and distance learning. These included: the choice of type and usage of technology; the learner skills, the educator skills, attitudinal change, institutional capacity, and support services.

**The Choice of Technology**

Technologies used in distance education change over time. In the era of globalization ICT has been said to improve learning through first, timely and fast delivery of learning materials, and secondly creating improved learning resources. The challenges faced are that where technology is available and affordable there are challenges of accessing network. There are chances when one having a technology does not mean that one uses. As one of the student in one of the OUT regional centre this study said:

“..I have my Sambingusa Modem. When I bought it I thought that I had solved the problem of access to Internet. But I assure you that now I feel I lost my money. I am not able to use it when at home as it has no connection at all. I asked the Sambingusa vendors at a nearby town, why that was the case, they said I cannot access data. My office is busy and I thought I could solve the problem of getting further readings and information through access to the internet” [Wembe, Sambingusa is a company’s pseudo name]

In Tanzania there are number of different companies that provide internet services through phones and modem. There are a number of students who can manage to have cell-phones. The challenges they face is based on the availability of bandwidth and the
suitability of the phones and modems. Bandwidth is a problem in most developing countries (Nour, 2002; INASP, 2003). Some of the phones sold in developing countries are not suitable for e-learning as cannot connect to the internet use and sometimes do have poor resolution. One of the research participants noted:

“I have my cell-phone. I went to the vendors and said that the phone cannot access data. It is made of low quality software” [Kigelo]

If university management decides to select a phone model for use by students, there is likelihood of business people to increase the price. Experiences and knowledge on use ICT might be different. In some cases people with ability to acquire ICT equipment end in getting low quality of the ICT equipment.

**The Learner Skills**

The ICT skills are not yet part of school education in many developing countries. The life after graduation of many individuals requires training of ICT skills so as to be competent and efficient knowledge producers and users. There are differences in accessing ICT to persons with and without disabilities. These differences emanate from the equipments they use. To this end challenges to persons with disabilities toward inclusion in education agenda are likely to increase. To date there are large numbers of individuals who could not use ICT and many of them belong to the group of persons with disabilities. As one of the students with disabilities said:

“My fellow OUT students got a reduced rate for studying ICT skills. The Open University decided to train its students in using ICT facilities. Many of OUT information including students’ progress report are found in the internet. But, I cannot access anything and cannot enjoy the ICT services as I cannot see.

..... I was of the opinion that OUT and the general public find means to address access to information to persons with visual impairment and blindness” [Kikolo, a student with visual impairment]

Marc Prensky (2001) is on the opinion that school socialization seem not to support the learning of digital natives. Further Prensky contents that school socialization and general life experiences gap is created by teachers who are themselves digital immigrants. In accordance to Prensky (2002), OUT created ICT skill training courses so that the digital immigrants can have a smooth transition to entering the world of digital natives. In developing countries, digital age persons are also digital immigrants when it comes to technologies that support their learning. When one has entered the digital age, there are challenges of buying ICT equipments for use and practice. As one of the OUT ICT skill training course student said:

“I am trained on how to use the computer my problem is the ability to access ICT facilities because they are expensive, often not efficient and not guaranteed, hence not returnable after sales. I think there is a need to have strict rules on procurement of ICT solutions” [Sambinguleka]

Where one has ability to buy ICT solutions, quality becomes problem and bad after sales contract experienced in developing countries pose further challenges in implementing ICT enabled services such as enhanced open and distance learning.

**The Educator Skills**

There are challenges related to lecturers that include lack of knowledge and skills in using ICT, workloads, and availability of ICT facilities. This has resulted to most of institution to increase budget to train staff so that they are capable of using the ICT skills.
As one of the academic staff responded during an interview:

“..I know how to use the computer, but I am not trained on how to teach using the computer. I think there is a need to have courses on how to use the learning management systems so that we efficiently and effectively support our students” [Kikwekwe]

In cases of academic staff with visual impairment and blindness there are no special training programmes on using ICT skills. This creates the digital divide not only between the haves and non-haves but also bandwidth and the consequent disability issues. As one of the lecturer responded:

“I want to learn computer. I feel that my students would also want me to teach them using the available technology. I have not got a place to teach me on how to use a computer. I have already afforded buying one but I am unable to use it on my own” [Mnyalu, A staff with visual impairment]

Whereas Mnyalu can buy, Bosi can be assisted to get one. Both cannot get a place for training.

“... My family member said would buy a computer for me. But I tried to find a place to train me on how to use a computer, to date, none is available. There a need to get a place to train persons with visual impairment in using ICT facilities” [Bosi]

There is a need to come up with best ways to support persons with disabilities in accessing ICT facilities. As the world is changing, there is no possibility of creating a special world for them. In accordance to Michailakis (2001), learning ICT increases employability to persons with disabilities.

In ensuring that OUT is an equal opportunity, the University decided to use an affordable technology which is audio books recorded in audio cassettes. Students are provided with radio-cassette and the audio-materials recorded in cassettes. For students with disabilities there are more hidden costs as compared to the one without disability, as sometimes they might be required to buy dry cells or ask someone to read for them. As one of the student responded during an interview:

“... I am given a radio cassette and tapes to listen. When I was in town it was easy as I was using electricity. Now I have been transferred to the village, I am facing a challenge on how to get power. Using batteries is very expensive. There are no supports for buying dry cells. I tried to find some fellow students so that we study together, but no one is taking the courses I am taking. I am stuck”. [Sasa]

Students with visual impairment face challenges in accessing learning resources.

“... I cannot access technologies used in ODL. They provide study materials in normal-print, both hardcopies and softcopies. Most of the learning resources nowadays are found in the internet. There are two ways I can get the materials, one, print the softcopy in Braille print or make the softcopies available in audio form” [Samba]

Students with physical impairments are challenged in learning ICT skills as a result of infrastructural barriers.

“...I am interested to learn ICT skills but I cannot afford to enter classes because of stairs. I would suggest for us wheelchair-users to have a special laboratory in ground floor so that we also benefit. How do you do examinations? Examinations are done in halls, there are few stairs. I normally go early
to the examination place and my friends support me” [Senganono]

Infrastructures are barriers to persons living in remote areas resulting to more ‘knowledge divide’ among those living in rural places and those in urban.

“... I stay far from the town centre, therefore, I fail to attend and learn ICT skills. These courses are centralized in towns and it is expensive for me to stay for one month in town. ...Once I learn also I am prone to forgetting the skills, as I have no place to practice. In the village, there is no electricity and thus not possible to use a computer. What about cell-phones? ...I am told that cell-phones can be connected to the internet. But in the village I am working we have just one place where we can get phone signals, and it is only, for one company, Sambingusa.” [Wimbage]
Conclusion
Technologically Enhanced Open and Distance Learning in Developing Countries is still facing many challenges namely infrastructural problems, limited or expensive bandwidth, power problem, low purchasing power, content design and participation. In the case of bandwidth, although availability of undersea bandwidth expected in 2009 in Tanzania, was to lower cost and increase quality of bandwidth, a key challenge for universities outside big cities will be the relatively high cost of distributing the bandwidth using leased lines, and the lack of high quality optical fiber links to the university campuses, from poorly developed national Internet infrastructure.
There are also challenges related to delivery mode of content, formats and its layout that need to be accessible to all persons including persons with disabilities. Where infrastructures are available, there are shortages of experts to use and train others. The modes of training using distance education seem to be viable in developing countries, as, there is a continuous adoption of technology from the developed and other developing countries. A need to enable the environment and set funds for training and research on ICT usage is imperative. This would reduce cost incurred in buying ICT solutions that might not be relevant to the developing country environment. It further calls for more concerted efforts from different stakeholders involving the government, international community, civil societies and private sectors to invest in ICT technology in order to enhance Open and Distance Learning in Developing countries.
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Using Wikis for Collaborative Learning: A Case Study for Evaluating Students’ Group Writing

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Abstract

Wiki-based collaborative learning provides students with potentially significant opportunities for creating socially engaged tasks that require active participation and collaboration. However, despite the promising benefits of wikis, their pedagogical usefulness regarding true collaboration is still questionable. This paper reports on the use of wikis in higher education, along with the study of three wiki applications to report on critical elements of collaborative writing. Two main conclusions can be drawn from the results of the work. Firstly, the results reflect some consistency with those reported in the literature research that wiki-based collaborative writing cannot develop fully without a change of existing pedagogical practices and associated learning epistemology. Secondly, the results seem to confirm that wikis alone cannot make collaborative writing happen, unless students are accustomed to collaborative learning and practices.

Keywords: Collaborative learning, collaborative writing, MediaWiki, social constructivism, wiki application, wiki-based learning environment

Introduction

The added value of wikis lies in their potential capabilities to support collaborative learning. Wikis can be used in project development with peer review, as a group authoring tool, to track a group project, to collect data for a class project, for teacher evaluation, and for tracking research groups. In addition, teachers can use wikis for collaborative curriculum design and for course content authoring (Leung & Wah Chu, 2009; Matthew & Callaway, 2009; Mindel & Verma, 2006; Parker & Chao, 2007). The collaborative dimension of wikis allows students to work together to build, create, and develop content on the web, giving them a sense of how writing can be performed in collaboration. However, despite the potential capabilities of wikis, true collaboration does not work by itself as the research literature clearly reveals (Cole, 2009).

The aim of this work is to let students create wiki applications using MediaWiki as a software platform to support collaborative writing projects. The research goal is to assess the potentialities of wikis to support collaborative writing by identifying the factors that may influence the students’ learning. The main characteristic of collaborative writing is that it involves the production of a document by more than one author (Chao & Lo, 2009). Accordingly, a collaborative writing project is defined as a document that is developed and transformed by more than one student into a collective text following a co-writing development approach (Trentin, 2009). Such projects offer opportunities not only to practice literature review, academic reading and writing, but also to stimulate reflection, collaboration, knowledge sharing, and critical thinking.
The remainder of this article is structured as follows. First, a literature review is undertaken. Second, the research methodology of the work is described. Third, the results of the work are presented. This is followed by the discussion of the results and the limitations of the work. Finally, some remarks and future research directions conclude the article.

**Literature Review**

A critical evaluation of the research literature reveals that published material relating to wikis in education mostly seek to promote positive elements of use (Carter, 2009; Heafner & Friedman, 2008). However, despite positive results, there are a number of criticisms regarding the pedagogical value of wiki-based environments in comparison to traditional ways of learning. Cole (2009) indicated that very few researchers highlight the negative consequences of the integration of a poorly designed wiki into existing formats. Cole pointed out that in an educational setting, wikis were perceived differently compared with ordinary personal use and this discouraged student adoption and integration into classroom. Cole concluded that it is not enough to add a wiki into a course with traditionally, teacher-centered designed content and expect that students to automatically become more active in their own learning, participate, and collaborate with others.

Regarding collaboration, a number of research studies seem to confirm that students appear to favor individual work over collaboration using wikis. Karasavvdis (2010) reported on student resistance against collaborative writing with wikis. Furthermore, there are reports on the unwillingness of students to engage effectively in collaboration, because they do not want to change or modify others’ work (Britcliffe & Walker, 2007). On the other hand, Minocha and Thomas (2007) reported that students did not mind critiquing others’ work, but the nature of the critical reviews was not perceived as being positive by some of the students. Furthermore, Meishar-Tal and Gorsky (2010) indicated that in accord with previous research, students most frequently add content to a wiki rather than delete existing text, and contrary to previous research, students modify existing texts to a greater extent than previously reported. The research literature also reports on the inappropriateness of existing wiki tools for collaboration. In this regard, Minocha and Thomas (2007) indicated that is there is a need to support discussion aspects of collaborative activities with more appropriate tools.

Despite wikis’ potential capabilities, Dron (2007) pointed out that the structure generated through social software, that is to say software that supports collaboration and group interaction such as wikis, may not be useful or pedagogically sound, and they are many ways that social software can fail to address the learners’ needs. The most common solution to this problem is to use such software as a part of a “learning ecology” in education (pp. 64).

In fact, research does not provide sufficient experiences and evidence in order to draw meaningful conclusions that wikis are superior to traditional ways of learning. Majchrzak (2009) asserts that researchers need to understand what is different about wikis in terms of affordances, constraints, functionalities, and behavioral use of patterns, compared to existing collaborative technologies in order to derive new theories or refine existing ones, and to develop new pedagogical strategies to improve student learning.

**Research Methodology**

This work uses a case study to examine the pedagogical benefits and limitations of wiki-based collaborative writing. The case study is
situated in a higher education context. The units of study are students’ wiki applications that were developed collaboratively using the MediaWiki tool (MediaWiki, 2008).

**Wiki Applications**

The subjects of the wiki applications were chosen by the students themselves in collaboration with the teacher. The objectives, topics, and educational situations, in which the wiki applications were developed, are associated with the following subjects: Information technologies and learning in secondary education; data security and privacy for young users; and health and food issues for all categories of people.

**Participants**

Data from the case study came three student project teams involved in wiki applications development associated with the university course in Web 2.0 technologies. The wiki applications were developed by the project teams using a co-writing approach to the development process. The wiki applications were developed in collaboration with the university teacher, on the one hand, and fellow students for peer review tasks, on the other hand. Peer review occurred by means of the discussion forum tool associated with MediaWiki, but also by other communication channels.

**Methods**

To investigate the value of collaborative writing by means of MediaWiki, mixed methods were used to collect qualitative data: Self-evaluation and peer review to assess the wiki applications; informal discussion with the student teams over the project period; analysis of the wiki final products associated with the students’ writings; analysis of the students’ discussion protocols of the respective wikis; and analysis of the students’ final written project reports.

To carry out self-evaluation, students were asked to express their perceptions about their interactions with the material posted in the wiki by the group of students working together to develop a wiki application, and whether the wiki supported collaborative writing among students. Peer review was used by the students to evaluate the wikis of other groups of students to ensure that their writings meet quality criteria, and make suggestions for improvement.

Both self-evaluation and peer review were carried out using the same data collection instrument with five open-ended questions. The only difference is that in self-evaluation, the students evaluated their own wiki applications as a team, while in peer review each student evaluated their peers individually. The five open-ended questions were:

- Do you think that the wiki application fostered collaborative writing?
- Describe what do you think about the degree and quality of collaboration?
- Did you like that other students interact with the material you posted in the wiki?
- Do you like to interact with the material that other students posted in the wiki?
- Do you think that MediaWiki provided support for collaborative writing?

Regarding the analysis of the final wiki products and discussion protocols, the MediaWiki tool was particularly useful because it kept track of the contributions to the wiki applications made by each member of the groups, and between the groups.

**Results**

The results describe the students’ perceptions of collaborative writing after eight weeks of project work. The students’ writings and
discussion protocols are also critically analyzed.

**Students’ Perceptions of Collaborative Writing**

An analysis of students’ perceptions of collaborative writing by means of self-evaluation and peer review indicate that most students characterized collaboration as good, but difficult to measure, as one student posted: “It is difficult to measure the degree of collaboration as it probably has been much face-to-face discussions directly between the students. Such discussions are not easy to transmit by means of the discussion forum”.

A similar view was also expressed by another student: “You can collaborate by speaking and discussing. If this is the most ideal way to collaborate is another matter. It depends on how many students are in the group. To some extent the discussion forum tool fosters collaborative learning, but it is best to combine it with group meetings, when using the discussion forum”.

Most students perceived MediaWiki as a tool that does not support online collaboration as this student’s comment reveals: “We have been quick to use the discussion forum, but it still feels a bit "forced". Own experience is that the discussion forum is too poor to support collaborative writing activities. The date and the name of the contributor should come up automatically”.

In fact, the discussion forum tool does neither identify the name of the contributor nor the date of contribution. Furthermore, it does not separate discussions about major points. As a result, a great deal of searching is required before a thread of a discussion can be followed. Clearly, the tool cannot keep a sense of order to multiple discussions. To be useful for collaboration, the date of contribution and the name of the contributor do not need to be written down by the students themselves. Instead, they must appear automatically.

In addition, students reported on problems related to connections with the Internet and upload of files, such as downloading and placing of images, and connection problems with the server. It also appears that multimedia objects cannot be easily edited on the current MediaWiki platform. Therefore, most of the multimedia objects were skipped because of the limitation of the tool. Consequently, the final versions of the wiki applications were mainly composed of texts, tables, and some images. Finally, the storage of temporal versions of the wiki applications through the history function was challenging when the applications scaled up. As a result, the students felt that they were not motivated enough to use a tool that created a number of technical problems.

Finally, according to the students, the discussion forum was not the ideal arena through which to promote genuine collaboration. Rather, collaboration is more beneficial when the tool is combined with human communication by means of face-to-face dialogue, and supplemented with email, and eventually social software tools, such as FaceBook and Google Docs, or other web 2.0 technologies. This indicates that the wiki tool was not used alone as the only communication channel between students. Apart from using the tool for collaboration, the students also discussed the task of developing wiki applications by other technological means.

**Analysis of Students’ Writings**

A critical analysis of the students’ writings by means of the final wiki products show that collaboration was done in a relatively simple, uncritical, and unsophisticated manner, mostly by adding and formatting content to
existing pages, sometimes deleting small portions of the text, discussing superficially, or suggesting improvements to the technical design, rather than substantially changing, modifying, and critically reflecting on others writings. Clearly, collaborative writing was not done by deeply transforming an existing text to a collective document.

Furthermore, the students’ contributions were not evenly distributed among members of the same project groups. The degree to which students contributed to the wiki tasks also varied considerably. Looking at the types of activities that the students performed, the following categories can be distinguished: Add content, delete content, modify content that other students of the same group created, and format content. Most activities were related to add, delete, and format content. Few activities were associated with the content that was posted by other members of the same group. Group members mostly worked on the individual sections of the text they were assigned. There were few occasions when the groups worked on the same section by revising substantially each other’s writing. This cannot be considered as true collaborative writing.

Clearly, contrary to the students’ perceptions, a more detailed and objective analysis of the wiki final products once the wiki applications were implemented shows a very different picture of collaborative writing. It is obvious that students cooperated rather than collaborated when they made contributions to the wiki applications.

One reason for the poor quality of collaborative writing is the lack of collaborative skills. Another reason is the MediaWiki tool that was used for collaborative writing. Clearly, while wiki tools possess a number of potential features that can facilitate collaboration, it does not necessarily follow that they impose any “meaningful level of collaboration” between students (Judd, Kennedy & Cropper, 2010).

Furthermore, the MediaWiki tool alone cannot provide sufficient motivation to capture the students’ attention, even though the students found the applications motivating and stimulating enough to invest time and efforts in developing them. Clearly, while the results show that the students have the potential to be motivated by the topics of the wiki applications, their contributions to collaborative writing indicate low level of engagement, shortcuts in information analysis found on the Internet, heavy use of Wikipedia, poor writing and integration strategies, insufficient systematic testing, and lack of deadline awareness.

**Wiki Discussion Protocols**

An analysis the data collected by means of students’ discussion protocols shows similar results regarding collaborative writing. Most comments were related to editing, formatting, and technical aspects. Few suggested assessment of the collaborative writing tasks. Most students also referred to the inappropriateness of the MediaWiki tool for discussion and collaboration. They felt the need to engage in some form of synchronous communication to exchange their ideas and share their concerns. The students were generally in agreement with the view that while the MediaWiki tool has strengths in recording decisions, it needs to be supported by some form of face-to-face dialogue or similar ways of discussion to facilitate collaboration. As a result, there was a high degree of agreement about the lack of support for collaboration provided by the discussion forum. All reported that face-to-face meetings, eventually supplemented by traditional forms of communication, such as emails and phone, but also new technologies for social interaction, such as Google Docs,
are still important to their learning. They also believed that the combination of different forms of communication can stimulate learning, because some students prefer information technologies, while other students like traditional ways of learning. Finally, students agreed that working in a group is more beneficial to the learning process than working alone.

Discussion and Implications

It follows from the results that a number of issues need to be addressed in order to foster wiki-based collaborative writing. These are closely related to pedagogical practices and learning epistemologies, teachers’ competencies and role, students’ critical thinking skills, as well as affordances and limitations of wiki technologies.

First, despite the potential capabilities of wikis, the students experienced several problems with collaborative writing, mostly because they lacked collaborative writing strategies. This paper agrees with (Karasavvidis, 2010) that most problems experienced by the students hint at a “fundamental problem, namely the dominant traditional practices and the associated learning epistemology which is compatible by such practices” (pp. 226). This epistemology, which is behaviorist in nature, is incompatible with the social constructivist learning epistemology associated with wikis, which potentially promotes participation and collaboration. The social constructivist learning epistemology (Vygotsky, 1978), and related theories such as the idea that learning involves a deepening process of participation in a community of practice (Wenger, 1998), are based on the view that the way learners acquire and construct knowledge is shaped by their relationships with others. With other words, the social constructivist learning epistemology claims that learning is the result of knowledge acquisition through collaboration, and information sharing in authentic contexts.

Accordingly, this work suggests the following hypothesis: The problems faced by the students are to a large extent determined by the academic practices and associated learning epistemology in which the students are involved. These practices do not support true collaboration among students. Basically, existing pedagogical practices in higher education still rely on the behaviorist learning epistemology (Karasavvidis, 2010). These are incompatible with the underlying epistemology of wiki technologies, which requires active participation and collaboration among students.

Second, despite the problems of current wiki technologies, it is possible for teachers to guide students design advanced wiki applications that foster collaborative writing. However, this necessitates a sound understanding of the very nature of collaborative learning, the possession of basic collaborative skills competency, and the ability to involve students in genuine
collaborative learning. Unfortunately, this is not always the case. In this regard, Notari (2006) asserts that collaboration is less likely to be a success without proper guidance and scaffolding. This means that students need input and guidance from a more able partner in order to collaborate effectively. Clearly, the role of the teacher cannot be underestimated in a wiki-based learning environment. However, the time needed to monitor the students’ contributions to the wikis may be a real challenge for any teacher (Workman, 2008).

Third, true collaboration is also dependent on the students’ critical abilities and willingness to collaborate with other students to achieve a common goal. The lack of critical thinking skills can indeed restrict or constrain the students to express themselves naturally to avoid conflict and critical reflections with peers (Wheeler & Wheeler, 2009). Clearly, true collaboration may be a real challenge for any student as it is cognitively demanding in terms of skills and efforts. True collaboration in a wiki-based environment is difficult to achieve, unless students possess higher-order academic skills and critical awareness to judge the information and study material posted on the wiki by other students (McLoughlin, 2007). Otherwise, students tend to accumulate content on wiki pages as the history function of MediaWiki clearly shows.

As Cole (2009) pointed out, it is not enough to simply use wikis in courses without radical change of the pedagogy and learning paradigm, and expect students to automatically collaborate and participate. Rather, course content and pedagogy need to be redesigned to realize the potential capabilities of wiki-based collaborative writing in educational settings. Collaborative writing will not work fully unless the students are accustomed to collaborative learning and practices. Students should be given more time to experiment and familiarize with those practices and receive support throughout the course. A constructivist epistemology that fosters collaboration would increase the likelihood of successful involvement with wikis and collaborative writing (Karasavvidis, 2010). Clearly, unless students are given the opportunity to experiment constructivist practices, the “wiki way” will not work by itself, and it will not make collaborative writing automatically happen.

Finally, the discussion forum in its present form is not the ideal arena through which to conduct collaborative learning. The students did not sufficiently use the group discussion forum to engage in dialogue and reflection with fellow learners, because face-to-face interactions and collaborations were equally important to the learning process than online discussions. Hence, student collaboration in a wiki-based learning environment is still not just a matter of online discussion, but it is a human relation as well. The discussion forum cannot fully replace human dialogue and relationships in the process of collaborative writing, since many issues still need to be discussed face-to-face. Hence, given the affordances and limitations of existing wiki technologies, wikis still need to be used in conjunction with other ways of working and collaborating. Indeed, this work seems to confirm that the “hybrid” or blended model (Weber, 2008), which combines traditional instruction with wikis, may provide the ideal learning scenario for today’s connected student. Likewise, Witts (2008) asserts that the most beneficial use of wiki technologies is going to be in the blended learning environment. However, as noted above, wiki-based discussions mixed with oral group communication alone cannot foster genuine collaborative writing, unless students possess basic collaborative skills.

Limitations
The results of this work cannot be generalized due to the number of participants and the small sample size. Beyond the generalization issue, the second limitation are the methods used to assess the educational value of wiki-based collaborative writing, in particular peer review and self-evaluation, which require a high level of critical thinking, and deep level of engagement with the wiki content. Obviously, this cannot be expected from most students without training. It may also be necessary to refine the other instruments for measuring the students’ perceptions of collaborative writing to ensure their validity and reliability.
Conclusion

Despite the problems encountered by the students and the limitations of the MediaWiki tool, the wiki applications were pivotal for both the instructor and the students, revealing the challenges of creating wiki-based applications from the ground. The experiences that have been reported in this paper demonstrate that the use of a new technology, which provides opportunities for collaborative learning, can never be easy or straightforward. Clearly, a number of technological, pedagogical, and cultural issues need to be addressed in order to promote wikis as collaborative writing tools. Another factor that can promote or hinder the success of wikis in higher education is time. Eight weeks of group writing was too short to investigate the growth of writing capabilities.

Indeed, research reveals that information technology can provide positive learning opportunities, but it takes time (Hayes, 2007; Teartle, 2004). Accordingly, the overall impression is that the successful use and implementation of wikis in higher education is highly dependent upon the availability of time to think deeply about collaborative writing issues.

Future work will focus on the development of a pedagogical approach to wikis based on social constructivism and communities of practice. It is also important to further investigate the factors that may influence the use of wiki-based learning environments in higher education.
References


The Classroom Practices of Critical Language Teachers

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Abstract

Critical Language Teaching (CLT) is a democratic and collaborative way of thinking and teaching that takes awareness-raising and power sharing as the main strategies of empowering learners while learning the language they need.

Based on a paper that explores the practices of critical language teachers in the classroom, this presentation uses data gathered by an observation and an interview both to understand how the respondents translate their ideas into action inside the classroom and to problematise assumptions they hold regarding authority sharing and the respect of the learners’ knowledge in the classroom. Thus, by involvement, the presentation aims not only to empower the participants by taking the opportunity to reflect upon their assumptions and practices but also to raise their awareness to the necessity of practicing criticality at the levels of both reflection and action and to get rid of non-critical assumptions and practices they defend. Therefore, participants, especially ELT teachers, will learn about CLT as an ELT methodology and share their reactions to it.

Keywords: Critical pedagogy, power sharing, involvement, critical language teaching, classroom practices

Introduction

This small-scale study, that explores the practices of critical language teachers in the classroom, is motivated by an earlier one on their assumptions and beliefs. In a paper on teachers’ understanding of critical language teaching, a questionnaire was used to explore the assumptions and beliefs of three language teachers who described themselves as critical and who worked in a police science academy in the Middle East. Among the areas covered by the paper were the informants’ definition of critical language teaching (CLT), the content of its knowledge base and its challenges. Thus, CLT was defined as “a democratic and collaborative way of thinking and teaching that takes awareness-raising and power sharing as the main strategies of empowering learners while learning the language they need” (Ould Hende, 2007:24). As regards the content of the knowledge base of CLT, the informants emphasised that teachers should hold critical attitudes towards specific important teaching aspects such as curriculum, methodology, language, classroom management, the relationship of teachers and the learners, and assessment. In terms of challenges, they believed that the most difficult challenges to meet were the ‘satisfactory sharing of power’ and taking advantage of the knowledge of learners in the classroom. All in all, the paper concluded that, at the theoretical level, the three teachers appeared to be not only aware of the discussions going on in research on criticality, but they also appeared to be true believers of criticality.

However, despite the detailed assumptions, beliefs, and descriptions provided in relation to criticality, the paper neglected two important aspects of criticality. First, by investigating teacher’s definition of critical
pedagogy according to how they see it, the paper fell short of problematising and challenging assumptions they held that, sometimes, did not belong to the literature of critical language teaching such as that the teacher was the boss of the classroom and that the learners did not have appropriate knowledge to co-design the syllabi. Because the informants described themselves in the previous paper as critical, one’s expectation was that they satisfactorily shared authority with the learners, used a language the learners understood, involved them in the decision making and facilitated discussions, but, as a colleague, I could remark there was an observable gap between their assumptions and their classroom practices. Second, the paper neglected how the respondents realized their assumptions, beliefs and descriptions in the classroom. As (Freire, 70:52) explains "within the word we find two dimensions, reflection and action, in such radical interaction that if one is sacrificed — even in part — the other immediately suffers‖. Thus, the present paper uses data gathered by an observation and an interview both to understand how the respondents translate their ideas into action inside the classroom and to problematise assumptions they hold regarding a authorsharing and the respect of the learners’ knowledge in the classroom. Thus, by involvement, the study aims not only to empower the respondents and myself by taking the opportunity to reflect upon our assumptions and practices but also to raise their awareness to the necessity of practicing criticality at the levels of both reflection and action and to get rid of non-critical assumptions and practices they defend.

**Literature Review**

Research on the practices of teachers, in general, and on the practices of the critical language teachers in particular is very helpful to teachers, especially if it is done by teachers themselves (Zwiers (2007; Pace and Hemmings, 2007). For example Hall (2004:2) believes that teachers should "produce their own local understandings of the classroom, ELT and education, and their relation to wider society" and that "what is needed, …is not prescriptive solutions (which are potentially problematic in the development of local practices) but illustrative case studies, whereby teachers can access examples of colleagues' actions and achievements‖ (p 1). Furthermore, Miller and Fox (2005), Lopez (2005), Kincheloe (1991) and Pace and Hemmings (2007) argue that research done by teachers on their practices in the classroom is more imperative and useful than the theoretical accounts of these practices. Lee and Tan (2004) traced criticality in Malaysian teacher education programmes by investigating the practices of six learner teachers. Although they came out with a pessimistic view of the practice of criticality in Malaysian education, they reported practices such as the salient commitment to involve learners in the decision making. The work of Lee and Tan was made possible by descriptions given by studies such as Deneger (2001) and Lopez (2005) to critical and non-critical practices at various levels of language teaching. Deneger (2001) describes critical teacher education programmes as ones that take education as a political act and that are "built from the bottom up involving the opinions and ideas of potential learners, staff members, community members, and teachers regarding the place, the kinds of classes to be offered, the time of classes, the teachers, and the administrators" (Ould Hende, 2007:8). According to the above description of critical language teaching programmes, taking education as apolitical and failing to involve those concerned with the programmes in the decision-making is considered non-critical. Lopez (2005), in turn, describes the critical language teacher as one who designs the syllabus, uses a language the learners understand, facilitates and moderates
discussions, provides resources inside and outside the classroom, involves the learners in the decision making, invite them to share authority, and help them co-develop the course. In relation to Lopez's description of the critical language teacher as one who involves the learners, it is worth noting that this can be done in many ways. The teacher can involve the learners in answering questions, choosing activities and co-developing the course, for example. It also goes without saying that, according to the above description, any practice that does not involve learners is non-critical. Lopez, 2005:3) further explains that non-critical pedagogy "is generally practiced in institutions that promote pre-designed syllabi centered on a fixed course material to be covered".

However, although the above studies provided us with examples of the practice of teachers and analytical and critical tools by which the practices of critical language teachers can be critiqued, they mainly represented what the researchers thought the teachers were doing in the classroom. They also interested mainly in the ‘how’ of teaching at the expense of the ‘why’. Therefore, in addition to the survey of related literature and my interpretations, which can be considered of the type of data provided by the above studies, the present study uses two data collection instruments in order to put both the teachers’ and researchers’ judgments and conceptions of what goes on in classrooms under scrutiny.

Methodology

The following research questions guide the methodology of the study.

1. What are the classroom critical and non-critical practices of the respondents?
2. What are the theoretical justifications of the classroom critical and non-critical practices of the respondents?

In order to answer the above questions, the methodology included the following aspects: the theoretical framework, the context of the study, the respondents, data collection and data analysis.

The Theoretical Framework

Because the study deals with critical pedagogy, as it explores the practices of critical language teachers, it uses aspects of the critical research paradigm as conceived by critical applied linguistics. In addition, the importance given to relating the respondents’ assumptions and practices to the critical literature is inspired by the critical theoretical framework which assumes that “social reality is historically constituted and that it is produced and reproduced by people” (Myers, 1997:1).

The Context of the Study

The context of this study is a police science academy in the Middle East. We, the three respondents and I, worked in the English language centre which was classified under 'support sciences', one of three academic programmes offered by the academy.

The Respondents

Among the teachers who believed they knew and practiced critical language teaching and who volunteered to answer my questionnaire were the respondents of this study. I decided to limit the study to them for the sake of convenience. The three (two male and one female) come from the Middle East. To protect their anonymity, they were given pseudonyms. Amer (53 years old) and Amina (45 years old) hold Masters in TEFL. Salem (47 years old) holds PhD in TEFL. The three of them had more than twenty years of teaching experience.

In addition to giving them pseudonyms, other ethical measures were taken. They were assured that they would be involved in all the stages of the study including its overall design.
and data analysis and that a copy of the final draft would be given to each participant. They were also assured that information related to the study would be kept secret and safe and that it would not be used but for research purposes.

**Data Collection**

The study used an observation and an interview to collect data of the practices of critical language teachers. The purpose of the observation is to provide examples of practices I can refer to when challenging the understanding of the respondents of critical language teaching. The observation lasted only 45 minutes. Before the narrative of what I heard and saw, the observation form included what I thought important information on aspects of the context such as the date of the observation and the venue. (See the observation form in appendix 1 and 2 for more details). The date and time of the observation were set according to our teaching timetables.

The purpose of using an interview is to let the teachers clarify ambiguous points in the notes of the observation. Thus, the study used semi-structured interviews because they “help the researcher to stay alert to the focus of the study and at the same time be open minded to encounter spontaneous and new ideas that emerge during the interview sessions” (Bt Raja, 2006:131). The interviews lasted only 10 minutes each. I asked them only about few points from my notes of the observation that needed clarifications.

**Data Analysis**

The data analysis consists of summaries of my own interpretations of data gathered in the observation and the interview. In addition, because the respondents were colleagues whom I saw almost every day and because I wanted them to change some of their understandings of critical language teaching according to understandings of the researchers in the field, I involved them in all the stages of the study especially as “member validation” (Guba and Lincoln, 1985) checkers and proofreaders. Thus, the three respondents agreed and sometimes recommended changes in my interpretations of their answers in the two data collection instruments and in the overall organisation of the paper. The critical and non-critical practices have been classified following Deneger (2001) and Lopez (2005).

**What are the classroom critical and non-critical practices of the respondents?**

The following are the three major themes that recurred in the notes of the observation: involving the learners, friendliness and preparedness.

**Involving the Learners**

**Critical Aspects**

The critical practices that involved the learners included few positive actions performed by Amina and Salem and almost all the practices of Amer. A positive action that could be counted as involving the learners on the part of Amina was that she helped them, one by one, form correct questions as part of an assignment they had. She also let them speak Arabic when needed. Amer, the most critical of the three respondents, gave handouts to the learners on types of law. He asked them to read the handouts silently and to compare the information they contain with what they had learned in other legal courses. Apparently, his purpose was to give the learners a material for reflection and discussion. When the learners obtained ideas from the handouts, he moved from one learner to another negotiating the meanings of the handouts. In addition, in order to let them express their views of what was in the handouts, he asked them “what is the difference between this division of law: civil, criminal, common, public and private and the one we have in the UAE?” Then, the learners talked to each other explaining...
difficult words and making a shared opinion about the content of the handouts. Another practice that showed the willingness of Amer to empower the learners was permitting them to speak Arabic. When a learner remarked they could not discuss freely in English, he said “Don't worry; you can speak Arabic whenever needed”. As he explains, later in the interview, in order to hear what people can say, let them speak the language they like to speak. So, this is another indication of his respect for what the learners bring to the classroom. At the level of the expressions he used in the classroom, Amer was also respectful and inclusive. For example, throughout the lesson, he used expressions that indicated he was taking the learners into consideration in making decisions such as “let us” and “agreement”.

Non-critical Aspects
Almost no practices and expressions of Amina and Salem in the classroom were critical because they did not seek to involve the learners in the activities. For example, without any introduction, Amina asked the learners to open their books at page 13 of ‘New interchange 2’. Because Amer gave handouts to his learners to trigger their curiosity, I expected her to be giving the reading for the same purpose. However, while the learners opened their books on page 13, she wrote the title of the reading session, 'Stuck is an airport? What to do …” Immediately after that, she started the dictation of the activities without any consultation with learners. In addition, the activities that could elicit the interest of learners, if they were given in a more sharing way, were dictated in a military way; “activity 1, underline the new words, activity 2, look up these words in the dictionary”. It is noteworthy that expressions such as the above, which were a few instances of what she used from the beginning of the lesson till the end, cannot be indications to respecting the learners and involving them willingly in the lesson. Like Amina, Salem started giving military orders from the first moment he entered the classroom. “Today, I want to teach you how to write a coherent paragraph”, said he. He proceeded in explaining the mechanisms of the paragraph in English giving examples he spontaneously made and he referred them, sometimes, to texts known to them. As a sign of disinterestedness and boredom, a learner asked. “Can we have a break?” Salem, agreed to give them ten-minute break, surprisingly. Unfortunately, after the break, the learners were not involved in any activity. So, it seemed that Salem simply did not have the intention to involve them.

Friendliness
Critical Aspects
Like in the theme ‘involving the learners’ the expressions and actions of the respondents in relation to ‘friendliness’ can be divided into critical and non-critical with Amer being the source of criticality and Amina and Salem representing non-criticality. In terms of expressions, the fist expression Amer used was “Morning chaps”. In addition, in the course of the discussion, he addressed them like “yes, my friend”. Undoubtedly, these expressions show that if Amer were not a real friend of the learners, he wanted to give his relationship with them a degree of informality. In fact, formality and friendship rarely go together. In addition to the intimacy one could remark between Amer and the learners from the way the learners talk to him, he did ask one of them about family matters. So, although the instances I noted of this theme were not many, I could remark they go with the same critical character Amer adopted in involving the learners.

Non-critical Aspects
As might be expected, Amina and Salem showed a clear formality when dealing with the learners. With the exception of Amina greeting everyone by name, all their
expressions and actions in the classroom pointed to a big divide between them and the learners. In fact, all the non-critical practices that did not involve the learners could be taken as indications of low degree of friendliness. Thus, such relationships cannot be taken as critical because they did not show the awareness of the necessity of inclusiveness and modesty that characterize critical thinking.

**Preparedness**

**Critical Aspects**

Critical aspects of preparedness, also, were exhibited by Amer. He came exactly on time and started his lesson. When he created an atmosphere of joy and interestedness in the classroom, he went from one learner to another and never sat on the ‘high’ seat. In fact, he was physically ready to teach. He also gave the impression that he knew what he was doing. He never asked them the wrong question, gave them the wrong assignment, or forgot the subject of the discussion. He appeared as if he taught the material many times and to different groups of people.

**Non-critical Aspects**

The non-critical aspects of preparedness, on the other hand, were exhibited by both Amina and Salem. Amina, for example, entered 5 minutes late. She sat on a desk in front of the learners and never left it. As an indication that she was not doing her job properly, a learner remarked that they did “this in the precedent class”. One interpretation of Amina’s above practices is that she was not well prepared to teach the material. Otherwise, she could open a discussion over the topic of the reading she gave them and answer their questions about it. The same interpretation applies to Salem who, also, opened no door for the learners to participate or ask questions. Such practices are non-critical because they demonstrate the un-preparedness of the teachers to play their roles as facilitators properly.

**What are the theoretical justifications of the classroom critical and non-critical practices of the respondents?**

Because the observation included many actions, I decided to limit the interview questions to clarifications of two segments of the theme ‘involving learners’; explanation and language use and one segment of the theme ‘preparedness’; the position in the room. Thus, the respondents were asked the same questions and their answers are classified as critical and non-critical as follows.

**Explanation**

**Critical Aspects**

As I expected, the practices of Amer were based on critical assumptions that could be located in the literature of the field. His main principle was the respect of the knowledge of the learners. Therefore, when asked about negotiating the steps of the assignment, comparing laws and redoing the homework, Amer explained that his "guiding beliefs were that the learners need to be honestly involved in the teaching process". In addition, they need to be shown that the importance was given to discovering the areas in which they needed help, not to testing their performance. He adds, by the way, that testing makes more harm than good. Thus, as will be seen later in the section ‘discussion, Amer’s justifications showed good respect of the learners and were rooted in the literature of criticality.

**Non-critical Aspects**

Like most of the non-critical practices and justifications of Amina and Salem, the justifications in this area are un-defendable and have no support in the accessible literature. When I asked Amina about the way she gave instructions to the learners, she explained that her experience taught her that the teacher must be the boss of the classroom. She added that her experience also showed her many situations “in which the teachers were rejected because they were democratic”.

(34)
Salem also believed that lecturing was the only way he could deliver his ideas to the learners. One of his reasons behind that was that the learners were very weak that they could not be more active in the classroom.

**Language Use**

*Critical Aspects*

When I asked Amer to explain why he allowed the learners to speak Arabic while they were learning English, he told me the following:

I believe this is a criminal act. At certain elementary stages, it is unfair to ask the learners to speak only English. This takes them back to the age in which they were not able to talk and they had nothing to say. Because I speak Arabic, I can make use of the experience of life and language learning of the learners. You must have noticed that they were pleased to discuss in Arabic. My goal was, in part, to make them learn English voluntarily in the sense that they use it when needed. I did not like to force them to use it because when they graduate nobody will force them to do so.

As will be shown later, in discussion, Amer’s above stance vis-à-vis language use is supported by some researchers in the field of criticality. Amina, in turn, at the beginning of her answers, said that she mainly sought helping in the production of a ‘positive citizen’ and that she usually adopted a participatory methodology. In fact, she gave a relatively reasonable explanation to letting the learners speak Arabic. She explained that she felt they were weak at English and using English only would require more time and practice.

*Non-critical Aspects*

In this area, language use, Salem was less critical than Amer and Amina. He started by stating that his main principle was that teaching was as complex as our daily life. However, the reason why he used only English as the language of instruction was that he believed "the learners lacked an English speaking environment" and they needed to be obliged to practice it in the classroom. Although he acknowledged that time was not enough to let them understand and say what they wanted, he insisted using English only was the best option.

*The position in the room*

*Critical Aspects*

On my question on why he did not sit or stand in front of them, Amer explained that he was not happy with the design of the room that put the seat of the lecturer higher than the seats of the learners. In his view, although the administration justified that by claiming the higher position made the lecturer see all the learners, the position gives the learners, from the first day, the impression that they are inferior to the lecturer. Then, they would not trust themselves at all levels. This was why he moved from one learner to another so that they felt he was one of them.

*Non-critical Aspects*

Although Amina and Salem believed in critical assumptions, they gave non critical justifications to in this area. Amina justified her position in the room which was on the higher seat in front of the learners by remarking that "the teacher is supposed to be on the seat of teachers". She thought that those who designed the room knew that this was the right position of teacher. Salem, in turn, considered that the high seat in front of the learners was his natural place. He believed that the teacher is in the place of the father, so he/she should be placed in such a position.

**Discussion**

Although data was limited, one can remark that it produced many controversial issues: authority sharing in the classroom (involving the learners), language use, the importance of testing, preparedness and friendliness, to
name only a few. In my view, there is no need to reiterate that the non-critical practices and justifications and “their underlying views have served people very badly” (Allright, 2005:9). Thus, in respect of the word limit of the paper, this section deals with only comments on the critical aspects of the practices and justifications in relation to authority sharing, language use and testing.

As has been seen, in answers of the research questions, most of the critical practices and justifications belonged to Amer. He involved the learners, let them speak Arabic and his teaching was not driven by testing them. As of his use of both English and Arabic, research indicates that at the “beginning and intermediate levels, the use of the learners’ mother tongue facilitates learner participation in classroom procedures and debates on cultural issues. This requires the teacher to allocate class time in which learners express their concerns about the learning process and the content of the course in their mother tongue” (Lopez, 2005:4). In addition, obliging learners who speak other languages to speak English only while learning it, as Salem did, not only hinders successful learning but kills their mother languages (Skutnabb-Kangas, 2000; Norton and Toohey, 2004; Crotty, 1998; Pennycook, 2001; Hawkins, 2005).

With regard to Amer’s negative attitudes towards testing, it is worth noting that, as far as research is concerned, testing is increasingly becoming famous of causing collateral damage to the learners, the teachers and the society as a whole (Nicholas and Berliner, 2007). For example, because the rich will find no problem in taking all the necessary training courses to pass the tests and enter all the walks of life and dominate it whereas the poor will not be able to take enough training, will not pass and will live oppressed and dominated by the rich. Thus, in general, the practices and justifications of Amer are supported by the literature. But, the fact that he was the only teacher who practiced his assumptions is embarrassing and suggests two viable critiques. When we take into consideration the context of the study, a police academy in this part of the world, we can be more optimistic about the future of criticality in that context. In fact, attempting to adopt criticality in a military institution, where respect and abeyance of orders are the main principles and where being critical may lead to dangerous situations such as termination and deportation (Ould Hende, 2007), cannot be motivated but by a truly solid belief and commitment to criticality. In addition, after having read the final draft of the study that included some literature of criticality, their principles and their classroom practices, the other two vowed to inform themselves more of criticality and to reduce the gap between what they believe and what they practice. Furthermore, they asked me to share all my future critical readings and research with them. From this perspective, the three teachers deserve our full respect and appreciation.

However, still in relation to the literature of critical pedagogy, in which critical language teaching is situated, another possible critique, that I strongly support, is that the respondents of the study cannot be accepted as critical language teachers. The fact that only one out of three teachers made a clearly visible application of his beliefs in the classroom gives us the impression that the assumptions and beliefs expressed by teachers in the previous study may be no more than ‘empty verbatim’. In fact, the two teachers who failed to practice what they believed could not take the military nature of the context as pretext. We have seen that a context like the police academy did not hinder Amer from acting very critically in the classroom. Thus, as
Freire maintains (1970:52) “when a word is deprived of its dimension of action … it becomes an empty word, one which cannot denounce the world, for denunciation is impossible without a commitment to transform, and there is no transformation without action”. In addition, criticality is not a work uniform that applies only in specific places and times; it is rather a gender that, normally, manifests itself in all places and in all times. Thus, in order to be a critical language teacher one has to express him/herself constantly combining both reflection and action because when the word lacks action it "is changed into idle chatter, into verbalism, into an alienated and alienating “blah” (Freire, 1970:52 emphasis is in the original).

The study had a number of methodological limitations. First, it did not include the views and attitudes of the learners towards the practices of the teachers. Ignoring active players in the classroom such as the learners was a serious drawback. Second, the number of three respondents was not enough to provide a big number of activities and practices. Because they were only three we could generate only a small number of critical classroom practices. Third, the inability to record the observation and interview was also a big inconvenience. If I had obtained recorded data, I could come out with a more accurate picture of what went on in the classroom.
Conclusion

The theoretical nature of this study allowed me to explore the practices of three critical English language teachers in a police science academy using data gathered in an observation and an interview. The study came out with two contrasting remarks in relation to the critical practices of the respondents. On the one hand, it pointed out that, in respect to above context, the respondents were brave enough to practice some of their beliefs. For example, one of them took advantage of the knowledge the learners bring to the classroom, held a vision of a society they wanted to develop and recognized the complexity of teaching in their classroom decision.

In respect of the wider atmosphere of criticality, on the other hand, the study pointed out that the respondents could not be taken as critical. They needed to adopt criticality in all their dealings with teaching. The teachers failed to involve the learners in many aspects of their learning. For example, learners could be involved in reflecting on the curriculum, pacing of the syllabus and in taking decisions in relation to their learning and assessment. The overall conclusion is that, because they were not compatible with their assumptions, the classroom practices of the respondents in the police science academy were non-critical.
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The Use of Free, Libre and Open Source Software (FLOSS) for African Higher Education Advancement and Development

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Abstract
The use of ICT in education in developing countries is a prerequisite for developmental efforts. Findings from previous studies show that not only technology will solve problems. We need also integration of curriculum and teacher knowledge development. Open Source software (OSS) provides African tertiary education sector more opportunities. However, the implementation of OSS, maintenance and related service processes have been found difficult. In this research-and-development project in-progress, a case study of University of Botswana and University of Tampere (Finland) are to be described. The project will be implemented during the next two years (2011 - 2012), and extended to other universities in Africa. The project represents an approach to involve private and public partners to ensure successful implementation and continuous services at the developing countries’ context. The project will also include comparison of proprietary and open source programs in order to enable cost-effective and effective use of educational software for instructional and course management purposes.

Keywords: Open Source Software, implementation, service provision, Africa

Introduction
The use of technology is of immense importance to the education sector worldwide. It is one of UNESCO’s aims to ensure that both developing and developed countries have the best educational facilities essential to prepare youths to actively participate in modern society and add value to a knowledgeable society (Anderson et al., 2002). Information and Communication Technology (ICT) could play an important role in helping fulfill this aim (Toledo, 2005). However, Watson (1998) states:

"More attention is needed to consistent and appropriate pedagogic use with an infrastructure for support that includes eases of access and time to incorporate Information Technology (IT) into a well-established curriculum. Time for teachers to reflect professionally is essential. Strategies targeting professional capacity building will have a greater chance of success. They need to be focused not on the technology but on pedagogy and on the delivery mechanisms to
be contextualized within, rather than superimposed on, the real professional environment of the teacher.”

In institutions where policies exist, there are often inferior implementations, no enforcement of policies nor adequate incentives and motivation to drive policies. Staff might also not have adequate time to develop online content and ICT policies cannot therefore be implemented due to workload. Monetary incentives do not always exist and quality assurance processes are usually not in place. For example, policy of staff development should be done on a gradient and tracked low-level of knowledge of technology by leaders. This produces reluctance to implement technologies (Challenges faced by African Universities in technology integration, 2009)

The purpose of this paper is to describe a developmental research project in progress to be executed by University of Tampere and University of Botswana. The focus of this collaboration is improving the use and development of Open Source Software in higher education i.e. implementation and service process management in the context universities of developing economies. The project aims at making use of Free, Libre and Open Source (FLOSS) software specifically Moodle learning management system (http://moodle.org/) at University of Botswana, and later at some other African universities in order to improve learning methodologies and facilitate collaboration. FLOSS is widely considered to be a tool for promoting ICT (Deodhar et al., 2010) in developing countries owing mainly to advantages like reduced cost of ownership, avoidance of vendor lock-in and development of indigenous technologies (Lerner & Tirole, 2002; Camara & Fonseka, 2007).

The need of this project is based on the fact that teachers’ use of IT in their daily work is still a challenge both in developed and developing countries (Marshall & Ruohonen, 1998). The focus of this research proposal is on the tertiary sector so as to narrow focal scope to enable precise, specific and important issues to be highlighted. In addition, another focus will be on specific Learning Management Systems (LMSs) because they entail one of the most important aspects in education in Africa which technology could play as enabler (Mavengere & Ruohonen, 2010). Among other issues, opinion leaders, such as managers of education institutions, teachers and senior academics in developing countries, lack ICT planning and infrastructure implementation knowledge. Guidance on this could help make better use of scarce resources, develop in-house skills and cope with rapid technological change by focusing on key organizational objectives.

This paper is organized as follows, after the introductory section the theoretical background is highlighted in Section 2. The theoretical background is comprised of the guiding alignment theory which is based on the strategic alignment model by Venkatraman et al. (1993). Section 2 also includes problem definition and research motivation. Next in Section 3 the research design is elaborated. Then project procedures are explained in Section 4. Section 5 highlights the proposed beneficiaries, outcomes and results evaluation. In Section 6 the project implementation plan is illustrated before the conclusion section.

**Theoretical Background**

**Guiding Alignment Theory**

Theoretically based guidance comes through the use of the Strategic Alignment Model (Venkatraman et al., 1993). They argue that the difficult to raise value from Information Technology (IT) investments is due to firstly, the lack of alignment between the business and IT strategy of the organizations that are making investments. Secondly, is also due to
lack of a dynamic administrative process to ensure continuous alignment between the business and IT domains. They describe four dominant alignment perspectives towards the analytical alignment of organizational strategy and IT as follows:

![Strategic Alignment Model (SAM), Venkatraman, Henderson and Oldach (1993)](image)

**Strategy Execution**
This perspective views the organisational strategy as the driver of organization design choices and this perspective views the strategy as the driver of both organization design choices and the logic of IS infrastructure. Top Management is strategy formulator, IS Management is strategy implementer. This perspective views the business strategy as the driver of both organization design choices and the logic of IS infrastructure. [Yellow arrow 1].

**Technology Potential**
This perspective also views the organisational strategy as the driver but, however involves the articulation of the IT to support the chosen organisational strategy and the corresponding specification of the required IS infrastructure and processes. The top management should provide the technology vision to articulate the logic and choices pertaining to IT strategy and would best support the business strategy while the role of the IT manager should be that of the technology architect who efficiently and effectively designs and implements the desired IS infrastructure that is consistent with the external component of the IT strategy (scope, competencies and governance) [Red arrow 2].

**Competitive Potential**
This alignment perspective is concerned with the exploitation of emerging IT to impact new products and services (i.e. business scope).
influence the key attributes of strategy (distinctive competencies) as well as influence new forms of relationships (i.e. business governance). Unlike the two previous strategies that considered business strategy as given, this perspective allows the modification of organizational strategy via emerging IT capabilities. The specific role of the top management to make this strategy succeed is that of the business visionary, who articulates how the emerging IT competencies and functionality as well as changing governance patterns in the IT market place would impact the organizational strategy. The role of the IS manager, in contrast, is one of catalyst who identifies and interprets the trends in the IT environment to assist the business managers to understand the potential opportunities and strengths from an IT perspective [Green Arrow 3].

**Service Level**

This alignment perspective focuses on how to build world class IT/IS organization within an organization. In this perspective, the role of business strategy is indirect. This perspective is viewed as necessary (but not sufficient) to ensure the effective use of IT resources and be responsive to the growth of IT and be responsive to the changing and fast growing demands of the end-user population. SAM would assist institutions not only raise value from Information Technology (IT) investments by achieving alignment between the business and IT strategy of the organizations that are making investments, but also provide a dynamic administrative process to ensure continuous alignment between the business and IT domains. [Blue Arrow 4].

**Problem Definition and Research Motivation**

The use of proprietary e-Learning Management Systems (e.g. Web Course Tools (WebCT) or Blackboard), have recently become prohibitive due to high license and service charges that institutions have to pay for the services provided. With the advent of free Open Educational Resources (OER), and their relevant applications to African settings, there is the dire need to explore their applications and compatibility with institutions in Africa so as to integrate them with the curriculum function of these institutions with the intention of customizing OER with special reference to Moodle.

A significant number of tertiary education institutions in Africa have administrative educational management systems. However, there is a significant room for improvement pertaining to systems that could be used for instructional purposes (Bass, 2010). Moreover, seemingly the teachers’ use of ICT in their daily work is still a challenge. Beauchamp and Kennewell (2008) stated that

“Most teachers adopting ICT use it for relatively authoritative teaching approaches, and our results suggest that they should identify how it can help achieve a more dialogic approach to whole-class teaching.”

Furthermore, theoretical guidance will come from the use of the Strategic Alignment Model (SAM) to assist in raising value from the use of ICTs in the institutions through alignment between business and IT strategy of the organizations; and also through achievement of dynamic administrative process to ensure continuous alignment between the business and IT domains.

**Research Design**

**Selected Research Approach**

Qualitative research approach will be used due to explorative nature of case study within the University of Botswana. The qualitative approach will be situated within the Cultural Historical Activity Theory (CHAT) theoretical framework and Development Work Research (DWR). Aspects of the Change Laboratory (CL) Method will be used
where video data will be collected as mirror data to assist in identifying changes in the attitudes of respondents in the change process. Data will be gathered from the participating faculties and departments within the institution, such as faculty members and other key informants, to map up the prevalent alignment as per the Strategic Alignment Model. In-depth interviews will be conducted with these key informants and focus groups composed of administrators, university faculty member(s), computer technology support person, and students.

**Proposed Results of Study**

The purpose of the study is firstly, to highlight practical issues in the diffusion of technological innovations in teaching and learning (e-Learning) at the University of Botswana (UB) taking into consideration the African context (Rogers, 1995). Secondly, the study will investigate the nature of alignment of e-Learning perspectives regarding the analytical alignment of business and IT within the University of Botswana using the Strategic Alignment Model (SAM) and other associated conceptual frameworks (Venkatraman, Henderson and Oldach 1993).

**Research Questions and Objectives**

The following research questions were identified for the Botswana study:

- What are the defining characteristics of innovation diffusion process of IT within departments at the University of Botswana as they infuse computer technology (e-Learning) into their curriculum?
- What is the nature of alignment of e-Learning perspectives regarding the analytical alignment of business and IT within the University of Botswana?

The following objectives were deduced from the identified research questions:

- To identify the defining characteristics of innovation diffusion process of IT within departments at the University of Botswana as they infuse computer technology (e-Learning) into their curriculum.
- To describe the nature of e-Learning within the context of four dominant alignment perspectives (SAM), towards the analytical alignment of business and IT within the University of Botswana.

The findings will be situated with the Strategic Alignment Model (SAM), and other conceptual frameworks for computer technology integration into UB programs: (i.e. pre-integration, transition, development, expansion, system-wide integration, and service level, Venkatraman et al, 1993). This type of application of SAM could result in the exploitation of emerging IT to impact new products and services and thereby influence the key attributes of strategy as well as influence new forms of relationships in institutions of tertiary education in Africa. In addition, many students embark on higher education programs with increased levels of computer use and with the expectation of the use and integration of computer technology by their instructors. When combined with strong administrative support, this combined top-down and bottom-up phenomenon could be the most effective method in the push toward system-wide integration of ICT (e-Learning).

**Progress of the project /Project Procedures**

**OER Implementation Support**

Moodle would be used to facilitate collaboration within African universities and with other project partners. With the help of preparatory meetings, partners can agree on the academic contents of cooperation, the practical arrangements related to student and teacher exchanges, planning of intensive courses and assessing FLOSS technologies.
Collaborative courses between participating institutions would then be conducted as well as student and faculty exchange programmes. One FLOSS platform (SaaS) service provider from Finland will support with practical experiences and guidance in setting up and managing FLOSS-based services. They will act as external experts to the project tasked to provide Open Source Support services, the platform, and necessary training for the partner institutes.

**Case Description: University of Botswana**

The study will seek comparison knowledge of e-Learning integration at the UB using both proprietary (WebCT/Blackboard) and alternative Open Educational Resources (OER) (Moodle). The UB is currently using WebCT/Blackboard for its e-Learning and concurrently piloting with Moodle given its low costs compared to WebCT/Blackboard where the UB spends $40,000 on license and service agreement fees and over $3 million for upgrades annually. It is therefore ample opportunity and relevance to explore the benefits of Moodle as a new learning management tool at the UB in the Botswana study. The staff of the University of Tampere and the participating company has expertise in the implementation of Moodle and have worked in the African context assisting in the execution of Moodle OER. The Botswana case study therefore explores the process of integrating ICT into the tertiary curriculum focusing on the process of e-Learning integration at the UB using identified SAM theory and other relevant conceptual frameworks.

WebCT/Blackboard was launched at the University of Botswana under the auspices of the Centre for Academic Development (CAD) using the blended learning approach during 2002. The UB was pursuing its vision of becoming a leading centre of academic excellence by developing a student-centered, intellectually stimulating and technologically advanced teaching, learning and research environment. Due to prohibitive license and service agreement and upgrade fees paid to WebCT/Blackboard LMS annually, Moodle is currently being piloted by the UB as an alternative OER, given the minimal service fees. There is therefore the need to conduct research aimed at customizing the new OER to the context of UB using current models in technology integration, diffusion of innovations, Developmental Research and other associated conceptual frameworks such as Rogers (1995) on diffusion of innovations. Botswana’s aspirations enshrined in Vision 2016 and Maitlamo ICT policies are as follows; becoming ‘an educated, productive, innovative and informed nation’ (Republic of Botswana 1997 and 2005). The current proposed project relates closely not only to the country’s Vision 2016, but also to the Maitlamo ICT policy focusing on e-governance and University of Botswana policy of developing a technology driven Open Distance and Virtual Education strategy.

**Proposed Beneficiaries, Outcomes and Results Evaluation**

The beneficiaries of the project are students and faculty members from UB, UTA and other stakeholders involved. Students will benefit through exchanges and by making use of technology to enhance their studies and potentially focus on implementing OER resources. Furthermore, joint intensive courses will be arranged at each of these universities using FLOSS educational system which would be of value to the students. In addition, exchange programs will be arranged to learn from the rich Finnish educational culture for the African partner universities. The staff at these African institutes will benefit as they will learn how to use educational systems, maintain learning management systems and acquire services in the area of open source software. Finnish
university faculty members and other partners will benefit in gaining better understanding of using and implementing open source based educational systems in developing countries context. Participation of a Finnish open source service company will improve the relevance of the development project and enhance possibilities to make sustainable service platforms for higher education institutes. Improvements in higher education will potentially benefit the involved countries thereby indirectly reducing poverty, balancing gender issues and improving the possibilities of women to participate in higher education and develop joint collaborative relationships with African universities.

The indicators of outcomes includes a running FLOSS education system in African partner university, number of student/staff exchanges and number of joint intensive courses. The immediate objective is setting up of Moodle, a FLOSS-based education system at the partner universities in Africa.

This outcome relates to the United Nations Millennium Development Goals and objectives of the Finnish development policy – reducing poverty and supporting sustainable development by enforcing minimum impacts of lack of resources in higher education. This is achieved by using FLOSS technologies to aid teachers in their everyday work and make better use of minimum resources. Botswana Commission Report (1994) took the stand that Botswana’s major resource is its people and that investment in their education and training is a necessary condition of national development. The application of technology will be increasingly important and that the workforce will need to be adaptable and receptive to change (Republic of Botswana, 1994). Learners should acquire cross-cultural perspectives and respect for different values and possess transferable skills in order to enable them to live and work in a global environment (University of Botswana, 2008).

The project promotes cross-cutting themes in the Finnish development policy in practice, the promotion of gender equality in particular by making sure fifty percent of people involved in the exchange are females. It is our intention to reserve at least fifty percent of vacancies for female students in the joint intensive courses.

Each partnering institution of higher education in the project seeks to benefit through the cooperative program that promotes sustainable scholarly activities and international education. The project’s focus is on research and development concerning expansive transformation and pedagogically grounded forms of ICT (e-Learning) use in institutions using proprietary & Open Educational Resources (OER).

The UB seeks to mobilize increased internal and external funding for research to achieve its vision, to be a leading academic centre of excellence in Africa and the World. A significant increase will be sought in the proportion of research funding derived from external grants and contracts (University of Botswana, Research Policy, 2008). This is also achievable by building internal capacity in information systems and information transfer models (University of Botswana, Information Technology Policy, 2003).

The expected results will be a research report and scholarly publications describing the transformation trend portrayed in the study within the context of the Strategic Alignment Model (SAM) to computer integration and other associated conceptual framework. The results will be in the form of a University of Botswana Case Study focusing on the implementation of the two Learning Management Systems (LMS) (i.e. WebCT/Blackboard and Moodle); seeking to identify the defining characteristics of the stages of diffusion of innovations that Faculty departments at the University of Botswana experience as they infuse computer technology (eLearning) into their curriculum.
The study will have two components; WebCT and Blackboard results as well as results of the Moodle pilot. The two will complement each other and benchmark from experiences from the collaborating institutions; especially University of Tampere, given the institution’s expertise in the use of Moodle OER.

**Implementation Plan of the Project**

**Process Explained**

Moodle will be used to facilitate collaboration within the university and with project partners. At the early phases of the project, there will also be preparatory meetings at all the African universities. In the first year, there will be staff exchange to University of Tampere and in the second year student exchange. The academic coordinator’s task is to cultivate sharing of culture and oversee contents in the collaboration. Each partner university is tasked to set up Moodle, organize exchange for staff and student, joint intensive course and general collaboration requirements. Regarding student exchange selection, each African university is tasked to submit four potential candidates to the project director who will choose the final two exchange students. The language of study at all the partner universities will be English and the contents will be information systems, education and development.

**Managing Risks and Lifecycle of the Project**

The main risk of the project is inability of the African partner in hosting Moodle. The main assumption is that the African partners have the computer infrastructure to host Moodle. Project success heavily depends on this commitment. Another assumption is that all the partners are willing and able to organize exchange programmes, network meetings, intensive courses and all related project activities. This risk is manageable as we are planning operational service arrangements with the Finnish open source expert company. As noted in the outcomes and results, the project seeks to develop a collaboration of culture and sharing within partner universities. Therefore continuity of collaboration is expected after project funding as the project will create some interdependence. The future plan is to expand the project experiences and practices to other developing countries in Africa and other continents such as Asia.
Conclusion

While universities have quite good technical facilities, these need to be better employed to provide equitable and quality education (Almohaisen, 2007). From the narratives emerging in more recent research, Barak (2006) and other researchers (Buettner, 2006; Ottevanger et al 2007) have questioned the efficacy of teacher preparation for the successful application of ICTs in classrooms. One of the greatest challenges of ICT integration relate to vision, policy and leadership given that ICT is changing faster than educators have shown themselves able to track. There is therefore the need to conduct evidence-led research in ICT integration using both proprietary and open source opportunities. Such a trend would raise value from IT investments and enhance the establishment of world class IT/IS organization within institutions in Africa as they respond to the changing and fast growing demands.
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Telecentres and Telecentre Academies: The Effective Tools for Re-Engineering Education

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Abstract
Telecentre.org is a worldwide network of individuals and organizations committed to increasing the social and economic impact of grassroots Telecentres. Telecentre.org Academy (a new and innovative model of e-education) offers skills-development programs to support grassroots-level actors involved in creating new and inclusive economies in developing countries and re-engineering of education. This Telecentre academy consists of many stakeholders and it has a unique model in e-education. Globally, a big digital gap is common in many developing countries. These Telecentres share knowledge, experiences and best practices to bridge this digital divide. In Sudan this digital gap is so clear in people with special needs, rural areas and the nomads. Gedaref Digital City Organization (GDCO) in Sudan is one of the Telecentres examples. It is the founder of the first Telecentre academy in Africa, the Middle East and the thirteen in the world (Sudan National Telecentre Academy – SuNTA). GDCO developed many projects in training, skill development and eradication of illiteracy through e-education. More than 3 million of out schoolchildren are waiting for this academy to be included in normal education system through this academy. May disabled (deaf and dump) are included in the community through these Telecentres using ICT (chat, emails) as a tool of communication instead of the sign language.

Global Telecentre academy (ref. 1, 2)

Telecentre is a public place where people can access computers, the Internet, and other digital technologies that enable them to gather information, create, learn, and communicate with others while they develop essential digital skills. Telecentres empower people who want to use technology to promote community development and facilitate their lives.

Telecentres movement is a newly developed global initiative. Telecentre.org is a worldwide network of individual and organizations committed to increasing the social and economic impact of tens of thousands of grassroots Telecentres by making Telecentres stronger and better at what they do. Telecentre.org has worked with hundreds of organizations in more than 70 countries. The global Telecentre networks, consist of more than 5000 members, they speak four different languages. Telecentre.org consist of 78 groups in partnership for community development, 2713 members speaking English, 1,477 members speaking Spanish, 1053 members speaking Arabic and 323 members speaking French, in addition to hundreds of thousands in all continent speaking local and national languages. They are sharing (1,597) Blog Posts and more than 6000 pictures and hundreds of events. They share knowledge, experience and best practices for community development online in an innovative ways through public private partnership (PPP).

Global Telecentre academy (GTA) offers skills-development programs to support grassroots-level actors involved in creating
new and inclusive economies in developing countries. It promotes the use of knowledge and information as means to empower millions of marginalized and poor communities. This Telecentre academy, has its role in e-education, training and capacity building and it has its unique system where more than a million Telecentre mangers and operators are going to be trained (training of trainee TOT) by 2012. In addition, there is a call for training one million women in 25,000 Telecentre all over the world in the year 2011. In addition, it gives it certificates accredited by IGNOU and other national universities. Fourteen international Telecentres academies operate in fourteen countries and provide professional development training to Telecentre managers in order to improve their skills and capacity building. They provide the training, tools and learning opportunities that Telecentres need to grow stronger, more sustainable and more numerous. Working with our partners, we have reached nearly 100,000 Telecentres around the globe and close to 40,000,000 Telecentre users across the globe, through these Telecentres we have empowered millions of people in the communities where they live. The academy will train 1,000,000 knowledge workers by 2015.

The Telecentre.org Academy offers skills-development programs to support grassroots-level actors involved in creating new and inclusive economies in developing countries. It promotes the use of knowledge and information as means to empower millions of marginalized and poor communities.

MISSION

1. Establish global programs to support the learning needs of over 1 million Telecentre operators, thousands of key policy makers, investors, and leaders of existing and emerging networks who seek to succeed in Telecentre work

2. Initiate appropriate skills-development programs to promote livelihood and knowledge-based practices among grassroots communities

3. Develop appropriate learning systems and curriculum, based on the learning needs of numerous grassroots-level knowledge workers and stakeholders to sustain Telecentre operations as mini- and micro social enterprises

4. Establish linkages with academic institutions to develop a linear career path for grassroots-level knowledge workers, and with Telecentre networks for peer-learning support, mentorship, and placement services

5. Demonstrate that the learning programs initiated by the academy fulfills the human resource development mandate of various governments around the world, in line with their national priorities

Stakeholders and actors of the Telecentre Academy Ecosystem (fig. 1) (ref. 1, 2)

Learners

The first and foremost stakeholders are the learners for whom the Academy has been constituted. The learners are not only beneficiaries of the Academy programme, but the main stakeholders. They advise the Academy by providing feedback on the continuous professional development needs of grassroots-level knowledge workers.

Who are the Learners?

Learners are over 1 million grassroots-level knowledge workers who create and promote inclusive economies around the world. They are over 10,000 policy-makers who need to aware of the benefits from the Telecentre movement, especially from the one million grassroots-level knowledge workers. Over 1000 individuals who work passionately for the grassroots-Telecentre movement as
network leaders, promoters and advocates in their own right and capacity, especially from the non-governmental (NGO) sector. Over 1 billion community members who have the potential to benefit when these Telecentres embrace community skills-development as their core work.

**The Tutors and Mentors**

Over 10,000 alumni of telecentre.org Academy who offer counseling, mentorship and learning support to over 1 million grassroots-level knowledge workers who audit telecentre.org Academy courses.

**Curriculum Providers**

Training and capacity building institutions, Telecentre networks, private and public service providers that can and do supply curriculum to telecentre.org Academy.

**National Telecentre.org Academies (Academy Consortium)**

The network of Telecentre actors that have come together as partners to telecentre.org Academy in each of the countries where skills development of Telecentre knowledge workers are seen as an important activity. These national academies are present in 14 countries one of them is Sudan.

**Consortium of Universities**

The telecentre.org Academy has agreed to collaborate with universities around the world to assess and certify learners with credits that is transferable, applicable for continuing further education, for finding employment.

**The Global Secretariat**

It is small team facilitating the work of the Academy. It coordinates curriculum development, accreditation, and maintenance of curriculum standards and global governance of the Academy. A Governing Body that safeguards the interests of the global nature of the Academy supports the Global Secretariat staff. The Global Secretariat reports to IGNOU leadership for all administrative matters and to the Governing Body for all technical work.

**Governing Body of Telecentre.org Academy**

It is a global team of experts representing the national telecentre.org academies, consortium of universities, curriculum specialists and the social investors. They support the global secretariat in its efforts to serve the academy. The Governing Body oversees and approves the curriculum, checks quality standards for administering courses, screens accepting universities in the consortium and admission of new national academies.

**Certifications and Accreditation**

A. On November 19, 2009, a global level Certificate Course in Telecentre management was launched as the first activity of the newly established Global Secretariat of telecentre.org Academy at the Indaira Gandhi National Open University, New Delhi, India.

B. The certificate course will offer 16 credits to learners in about 20 nations and in as many languages. The certificate course would be a base to pursue higher education up to the level of a PhD programme in any of the institutions in the consortium of Telecentre.org national academies. Courses are offered online and offline through a blended learning format, which can be completed within six months.

C. Introduction of a 64 credit (Diploma Course) in Telecentre management to be completed within 12 months for those who have completed a graduate programme in any stream or the Telecentre.org Academy certificate course in Telecentre management.
D. GTA developed more 15 modules of certification for normal certificate, B.Sc, M.Sc and MPA online through Indaira Gandhi national Open University IGNOU with support of and Malaysia Open University. The national university in each country will provide certification to participant.

Why is it Innovative Method of Education!!!!

Gedaref digital city organization (GDCO) http://gedaref.com/ is a civil society organization in Gedaref State, East Sudan where ICT is not part of the culture and not a priority (even to the government) and the disabled are completely excluded in many ways of life. It is the first and the only digital city in Sudan.

1. Illiterates can get their own certificate and they can continue up to higher level of certification i.e. you start your certificate with the basic a, b, c, …z and go through the diploma, bachelor and master up to the doctorate of philosophy (PhD).
2. No normal school certificate is required.
3. You can get your degree anywhere and at anytime if you fulfill the requirements of the degree.
4. deaf participation in conferences, practicing in commercial internet cafes and computers donation are one the factors that increase the number of deaf children in the school and it is a promotion for the easiness of learning computers for the community.
5. Most of the projects are sustainable and easy to replicate.
6. Deaf and mute communicate with their families, friends and have another way of communications instead of the sign language through chatting and e-mail all over the world instead of one place.
7. The end users of each project are completely involved and they are contributed to the project.

Gedaref Digital City Organization (GDCO)

Gedaref Digital City Organization (GDCO) in Sudan is one of the Telecentres examples. It is the founder of the first Telecentre academy in Africa, the Middle East and the thirteen in the world (Sudan National Telecentre Academy – SuNTA). Gedaref digital city organization - GDCO) is nongovernmental and nonprofit civil society organization (NGO) (Gedaref Sudan); it is part of the Telecentres movement where ICT is used for community development. GDCO is the winner of information for development award (i4d 2007 e-India 2007) for the inclusion of the disabled. It is the winner of i4d 2008 awards for the best innovations at the grassroots Telecentres; and it is the winner of i4d 2009 for the initiatives of civil society for development for the e-agriculture project and other e-services....

Foundation of Sudan National Telecentre Academy (SuNTA)

In June 2008, GDCO hosted the 5th east African Telecentre leader's forum in partnership with Ugabytes and its partners. 27 international participants from 17 countries attended the forum. On 11 June, Sudan national Telecentre academy (SuNTA) was declared as the first Telecentre academy in Africa and the Middle East and it is the 13th in the world. In august 2008 and at the Telecentre forum in e-India 2008 the vice chancellor of Indaira Gandhi national Open University (IGNOU), with telecentre.org, Gedaref state minister of education, CSDMS and GDCO chair launched the website of SuNTA. The Digital City of Eindhoven (DSE) Netherlands, the well-known partner of
GDCO in Netherlands donated 750 computers and more than ten projects were established using ICT for community development. SuNTA as a part of the Global Telecentre academy (GTA) committed to the best utilization of ICT for community development in Sudan and improve the quality of training to enhance capacity building of Telecentre managers, operators and the community leaders and provide them with quality skills and certification. The Sudan information funds constructed through NTC 1250 school Telecentres and 250 community Telecentres fully equipped with computers, printers, plasma TV, copy machines and faxes to train the students in the morning and the community in the evening.

**Objectives of SuNTA**

1. Best utilization of ICT for community development.
2. Improve the quality of community training to enhance capacity building, quality skills and certification.
4. Bridging the digital divide especially within persons with disability, disadvantage and marginalized communities to include them in the society.
5. Achieving the millennium developments goals (8th MDGs).
6. Help the governments to speed up the e-services to the community.
7. Co-ordination between the working organizations and institutions in the field of Information Technology to achieve the shared goals, participate in establishing new Telecentres, and supporting the operating Telecentres.

**GDCO - SuNTA and Re-Engineering of Education (ref. 3, 4)**

GDCO projects are public private partnership (PPP) projects. GDCO develops these partnerships according to its objectives and develop its initiatives according to the community needs considering the millennium development goals (MDGs) as priority criteria. GDCO works as organizers, facilitator, fundraiser, providing technical support and provides basic ICT infrastructure (computers) to the project.

**Bridging Digital Divide Projects Implementation**

Bridging the digital divide is one of the main objectives of GDCO. In Gedaref State there is a big digital divide; it is very clear between rich and poor, women and men, rural and urban area, able and disabled communities, the main reasons for this digital divide are poverty, climate change, and Sudan culture. According to statistic, there are more than 3 million out of schoolchildren in Sudan. In addition to this, more than 15% of the community are persons with disability who are excluded in many ways of life specially ICT. Although ICT is not part of the culture and not a priority in Sudan but GDCO work very hard to bridge this digital divide in the eastern part of Sudan (Gedaref state) through many ICT tools (projects or initiatives) including:

**Infrastructure of Gedaref University**

E-education (e-Learning or distance learning) is the use of technology to enable people to learn anywhere at any time or it is the virtual delivery of training courses or education to anyone who needs them through ICT where participant rarely or never meet face-to-face. Gedaref university, (IT and computer science college), as other Sudanese University has a deficit in computers equipment and other practical equipment and this why the students when they are graduated they are very weak in practical and application of what they studied. GDCO and its well-known partner, the digital City of Eindhoven (DSE) tackled
this problem. This partnership provided Gedaref University (IT and computer science college) with two computer lab or Telecentres (each one has 50 computers), one computer lab (20 PCs Telecentre) to the community college (women) in Gedaref University. The information supporting fund through the National Telecommunication Corporation (NTC) provides Gedaref University through GDCO with two units (20 square meters each) as an e-library fully equipped with computers and networking to support e-education. This helps a lot the quality of training and courses. NTC donated a 228 square meters Telecentre unit to GDCO and it is constructed as a telemedicine unit in the faculty of medicine and Gedaref hospital to treat the sick people over the net and train the medical students and medical staff online. GDCO established a Telecentre (15 PCs) for training, the graduated students (humanitarian college graduates who have a very low chance to the market job demand and support them with a computer certificate) in partnership with the graduate supporting fund and more than 400 were trained.

**Out of School Children (e-learning)**

Training of ICT skills to out of schoolchildren (illiterate) is another project to this marginalized community. According to statistic, there are more than 3 millions out of schoolchildren in Sudan... GDCO developed an initiative with Gedaref ministry of education (represented by H.E. al-basheer sahal). The ministry of education (e-learning council and adult education), UNICEF with, GDCO and Ahfad University started a project of e-learning in the in 3 villages in Gedaref state. They develop a curriculum and modules of training through the laptop for each child. The same problem was severe in northern rural area of Gedaref state where many children due to the climate change during the rainy seasons go with their families looking for pastures and grazing area for their animals where there are no schools and they miss their classes. So, GDCO will start replicate the project in the rural area for the nomad’s children and in the city for the deaf community (poverty problem) with many partners including, DSE, ministry of education (the curriculum and modules of training) and the global knowledge partnership (GKP). The UNICEF is targeting 100,000 children all over Sudan (14,700 children in Gedaref state). The project idea is teach out of school children (8 – 17 years) using laptops with green (solar) energy and after two years of training the children 8 – 12 years old will be settled in the normal Sudan education system class rooms.

**Telemedicine**

E-Health is relatively recent term for healthcare practice supported by electronic processes and communication. Telemedicine is a rapidly developing application of clinical medicine where medical information is transferred through interactive audiovisual media for consulting. GDCO in partnership with NTC – NIC, ministry of health and the faculty of medicine in Gedaref University constructed 228-meters square telemedicine Unit to:

1. Treat sick people online globally
2. Training and capacity building of medical staff and medical students

**Include the Excluded**

Include the excluded projects are a public private partnership for marginalized community development. Disable individuals are still excluded from many areas of life including information technologies (IT) so ICT training is an important key qualification and the Standard ICT trainings are insufficient for the handicapped. In addition to that 1/ more than 99% the disables are very poor so a big digital divide is created. 2/ they are considered a useless community and no one care about them. 3/ show the people that challenges and ICT can create a great things, also to show the other that learning computer
is not that difficult. 4/ Create a new source of revenue for them. 5/ have an equal access to ICT. 6/ Fighting against poverty within the disables through ICT. 7/ Help the deaf to communicate with their families, friends and have another way of communications instead of the sign language through chatting and e-mail all over the world instead of one place. 9/ improve their skills through the computers (ICT). 10/ Sharing knowledge, experience and best practices to help the disabled, GDCO established many Telecentres (more than 150 computers) in disabled unions, Alamal School for deaf and mute children in Gedaref and Khartoum (capital of Sudan), NGOs working with persons with disability. GDCO trains the disabled free and provides more than 60 deaf and mute children computers to keep at home, practicing and communicating with their friends and families. GDCO maintains or changes them if they are broken. GDCO trains many deaf and dumb as trainers (TOT), this help in reducing the time of training from five months to 21 days and it saves time and money. GDCO pays the cost of the commercial internet café for the deaf to demonstrate to the community how easy to access the net. GDCO Include the disabled in the community through many national and international conferences (Abu Dhabi exhibit for disabled, KITEX Khartoum, scientific innovation exhibit in Khartoum, Telecentre Cairo). Participation in conferences and free computers are one the factors that increase the number of deaf children in the school.

**e-Agriculture Projects**

a. GDCO and DSE established a Telecentre in GMAC and Gedaref farmers unions (more than 60 computers). These Telecentres used in training agricultural engineers, staff of GMAC and their families and farmers the basics of computers courses, GIS and GPS at 30% of the normal cost. The trained agricultural staff improved the existing Gedaref state digital map.

b. GDCO develops a software for GMAC farmers database (more than 10,000 farmers was included in the system of GMAC) with 7% (seven) of the normal cost guaranteed for 20 years for maintenance and software development. This database helps in speeding up transaction between GMAC and farmers to get their document (renewing, agriculture reports…etc.).

c. Improvement of the electronic (digital) map of Gedaref state natural resources which contains all the information about the agricultural area, pastures, forest and rivers in Gedaref state with clear points and demarcation of the animal routes, farms edges forest boarders which helps in decreasing the tribal conflicts between the farmers and shepherds, between farmers and forest department. In addition, it helps in solving the conflict between farmers in fields (farms).

d. Under design in partnership with Drishtee (India) the agro-mobile information system, which will provide six e-services to the farmers, traders or companies These e-services include daily weather forecast, Crops prices, animal prices, fertilizers applications, agriculture news break and online support (help desk). These services are provided in 4 ways a-SMS b- voice messages c- internet d- through a 3rd party for illiterate people and in rural area. (This party will also sell many e-services to community e.g. mobiles prepaid card, electricity prepaid card, and help farmers to sell their crops.

e. Design of a web portal for gedaref crop markets (A lot of information
about the quality and quantity for
more than 17 crops and animals are
available online)

f. Reduction in the cost of agricultural
planning and determination the
geographical coordinates
(demarcation) of the farms

g. GDCO is thinking to use the available
80 rainfall meters (gauges) in different
farms to measure the rainfall in all
directions to help in weather forecast.
h. ICT for disaster control, where GDCO
used the available information on the
Internet for disaster control
Conclusion

GDCO is a member in the steering committee of the economic and social committee for west Asia (UN-ESCWA Beirut) knowledge centre's, working on development of marginalized community through ICT. Telecentres started as community training centres to enhance capacity building. GDCO developed its Telecentres to knowledge centre where many ICT project for community development were established. GDCO utilized the big partnerships in sharing knowledge, experiences and best practices to achieve these changes. Now, GDCO is developed to investment Telecentres without changing its objectives. GDCO expecting to get a profit when its national Telecentre academy starts in November through training and certification, also get a profit from the telemedicine units and the agro-mobile services. All these will help in developing a business models for GDCO and sustains its Telecentres. In the past GDCO projects faces many challenges but it solve them. The first challenge is that, ICT is not part of our culture and not a priority in Sudan. This solved by continuous training with the cost price and using our partners in the universities staff as volunteers to train in our Telecentres in the summer vacation (it is free for disabled and students) so more than 4000 members were trained. Another challenge is the cost of infrastructure and high running cost. It is solved through partnerships which allow GDCO uses schools and clubs for training to avoids renting and using its partnership with the universities staff and graduated students to train in GDCO Telecentres in the summer vacation free in a win - win partnership where the graduated get practiced and we train them web design and Photoshop.. In addition, on call teachers (temporary staff) help in reducing the cost of training. The quality of training and certification will be solved through the global Telecentre academy curriculum and certification of Global Telecentre Academy and IGNOU through Sudan Open University. The absence of clear strategic plan can be solved through MoU and writing proposal for the projects with the role of each partner. The big challenge is the financial sustainability which will be tackled through training revenue, crop market web portal (selling prices information), telemedicine (percentage from the patient registration fees), partners support and Agro mobile SMS (40% of the traffic ). Another big challenge is poverty and the digital divide where GDCO started training in the poorest area with the cost price and training the disabled, poor students and orphans free. The low speed and high cost of internet was tackled by the government through breaking the monopoly of telecommunications companies (4 telecommunication companies and hundreds of ISP) i.e. we have 4 competing telecommunications companies.
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Figure (1) GTA ecosystem by Baheerhamad Shadrach and Reema Singh (Nov. 2009)
The Role of the e-Learning Manager in Re-Engineering Educational Paradigms

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Abstract
This paper examines the role of the e-learning manager in the re-engineering of education in the digital age. We say the e-learning manager is the most important determinant of optimal teaching and learning outcomes in technology enhanced educational paradigms. We describe strategies in which the e-learning manager has guided the application of technology enhanced teaching and learning solutions in the development of online courses for the training of hearing health professionals in ‘best practice’ in Auditory Verbal Therapy at the Hear and Say Centre Brisbane, Australia. The Hear and Say Worldwide e-learning model uses a ‘Blended Cyber’ mode of delivery that includes both asynchronous and synchronous technologies to reach-and-teach participants around the world, anywhere and anytime. We report on the ‘multiplier effect’ that results when the e-learning manager trains traditional teachers in the use of digital technologies thereby transforming them into e-learning teachers. We say the e-learning manager, as described in this Australian model, has a critical role to play in the adaptation of content and in the training of teachers for e-learning and thus, is the conduit in re-engineering educational paradigms.

Keywords: e-Learning Manager, Synchronous Cyber Classroom, Cyber Face to Face, Auditory-Verbal Therapy

Introduction
The digital age has put digital tools at our fingertips and forever changed the way information is stored and shared. It has transformed the world we knew to one of e-governance, e-commerce, e-health and e-learning. Our belief systems, our worldview and our mindsets are transforming as we use digital tools to create new models, patterns and exemplars. These new practices are shaping and redefining educational paradigms in the digital age. However, it is simply not enough to have the tools and use them to ‘digitise’ information and send it into the ‘cyber-sphere’. There currently exists a wide range of digitised data parading under the banner of the ‘information age’ and, for better or worse, the results are immortalised on a burgeoning World Wide Web.

Now more than ever, we must ask all the hard questions about how information is identified as worthy of sharing by whom and with whom, and which digital tools are best suited to diverse situation-specific demands – in the ever-evolving, socially-networked ‘anywhere, anytime’ digital world. Nowhere are these questions more relevant than in education. In this paper we say the e-learning manager is the most important
determinant of optimal teaching and learning outcomes in technology enhanced educational paradigms.

We define e-learning as learning which takes place as a result of experiences and interactions in an Internet environment. We describe an e-learning and e-health project at the Hear and Say Centre Brisbane, Australia - a world-class facility for the training of hearing health professionals in ‘best practice’ in Auditory-Verbal Therapy. In this paper we explore the role of the e-learning manager in the application of technology enhanced teaching and learning solutions, in particular the development of a ‘Blended Cyber’ mode of delivery for the Hear and Say Worldwide professional training programs. This paper puts the case for carefully managed e-learning through the engagement of an e-learning manager. We say that all too often e-learning is equated with having the digital tools and being expected to produce e-learning resources and deliver them. This can result in the slow uptake of technology by teachers who are ill-prepared for the demands associated with operating in the new digital environments. It can also result in the uploading of poorly designed ‘content’ and a squandering of the promise of the Digital Age (Prensky, 2001, 2008; Siemens, 2004; Negroponte, 1995). In this paper we describe an e-learning model that sought to maximise the potential that the new digital tools offer in creating new digital paradigms. We report on an e-learning model that has wider application in helping organisations like Hear and Say make a ‘paradigm shift’ to best practice in e-learning.

**Literature Review**

From the days of Socrates and long before the keeping of records, the teacher has been front and centre in the teaching and learning process. But what is it about the teaching and learning dynamic that keeps teachers at the ‘front’? How is this changing in the digital age? Hattie (2003) undertook an extensive review of educational literature and synthesized over half a million studies on learning. He identified the teacher as the greatest source of variance in student learning and stated that ‘excellence in teaching is the single most powerful influence on achievement’. Hattie identified five major dimensions that distinguish expert teachers from experienced teachers. He says expert teachers can identify essential representations of their subject, guide learning through classroom interactions, monitor learning and provide feedback, attend to affective attributes, and influence student outcomes. The impact of expert teachers on student performance can be measured in higher-levels of understanding of the concepts targeted in instruction - instruction that is more integrated, more coherent, and at a higher level of abstraction - than the understanding achieved by other students. Hattie’s findings support other studies that identify the role of the teacher as central to the learning process.

In these studies the emphasis is on learning specific outcomes through explicit pedagogical strategies, instructional design and instructional theory (Smith and Moore, 2006; Smith, Lynch and Knight, 2007). Marzano et al (1997) developed the ‘direct instruction’ approach and identified nine instructional strategies that are most likely to improve student achievement across all content areas and across all grade levels when used by teachers:

1. Identifying similarities and differences
2. Summarizing and note taking
3. Reinforcing effort and providing recognition
4. Homework and practice
5. Nonlinguistic representations
6. Cooperative learning
7. Setting objectives and providing feedback
8. Generating and testing hypotheses
9. Cues, questions, and advance organizer

Marzano’s work provided new emphasis on the importance of teaching. The role of the teacher according to Marzano is to use research-based teaching strategies that increase the potential of student learning. His work provided the pedagogical mechanism for the development of the idea of managing learning and the teacher as a learning manager (Smith, 2000). This was realized in the Bachelor of Learning Management, a program that put the teacher front-and-centre in the learning process as a ‘learning manager’ (Smith and Lynch 2010). The program contained units about managing learning by implementing teaching strategies, including the emergent role of ‘e-learning manager’, as illustrated in Figure 1 below:

![Figure 1: The emerging role of the e-learning manager](image)

With digital tools at their fingertips, and confronted with the reality of digital learners living and working in ‘wired’ worlds, the role of the e-learning manager is becoming pivotal as pedagogy catches up with technology. In recent research Hattie (2009) singled-out the strongest determinants of student achievement: the power of teacher feedback and interaction. The e-learning manager has the tools and the incentive to provide feedback and to maximize interaction in new ways and to create new educational paradigms.

The Blended Cyber mode gives the e-learning manager a range of options to use to maximize teacher-student feedback and interaction. It uses a combination or ‘blend’ of different instructional methods, different modalities and delivery media, and can include online and face-to-face instruction (Chen, Ko, Kinshuk & Lin, 2005; Hastie, Hung, Chen, & Kinshuk, 2010). Participants may be physically present and also present in a virtual or ‘cyber’ sense. There are ten variations of the Blended Cyber model, as listed in Table 1 below:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>(PA + PS)</td>
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<tr>
<td>2</td>
<td>(PA + CA)</td>
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<tr>
<td>3</td>
<td>(PA + CS)</td>
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<td>4</td>
<td>(PS + CA)</td>
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<td>5</td>
<td>(PS + CS)</td>
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<td>6</td>
<td>(CA + CS)</td>
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<td>7</td>
<td>(PA + PS + CA)</td>
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<tr>
<td>8</td>
<td>(PA + CA + CS)</td>
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<tr>
<td>9</td>
<td>(PS + CA + CS)</td>
</tr>
<tr>
<td>10</td>
<td>(PA + PS + CA + CS)</td>
</tr>
</tbody>
</table>
The Blended Cyber mode, with its ‘blend’ of asynchronous and synchronous tools, allows us to store and share content in new ways. However, Rosenberg (2001) reminds us that:

An effective e-learning strategy must be more than the technology itself and the content it carries. It must also focus on critical success factors that include building a learning culture, marshalling true leadership support, deploying a nurturing business model, and sustaining the change throughout the organization.

The Web-Based Education Commission Report (2000) identified the need for the removal of regulatory restrictions to e-learning to enable the transition from the legacy of the one-room schoolhouse to the one-world classroom. They accurately predicted that course content would come not just from a textbook or materials passed out in class by the teacher, but from many sources, in many formats, including those created by the students themselves. Hastie and Chen (2010) investigated the issues around learning ‘content’ and its place in the new digital learning culture. Strategies were developed in which technology enhanced teaching and learning solutions were used to enable learners to negotiate and create digitised learning content that is educationally, culturally and socially relevant to them. The study found that ‘relevance’ is best achieved when content is negotiated with learners in collaboration with instructors. The study concluded that digital learners want to use new digital tools to create new ways of thinking and learning. They are keen to do this in conversations with their learning managers and subject matter experts and this is changing the very notion of content, as illustrated in the following table (Table 2):

<table>
<thead>
<tr>
<th>Traditional content</th>
<th>Negotiated content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on knowledge ‘traditions’</td>
<td>Basis of a new media age</td>
</tr>
<tr>
<td>Institution centric</td>
<td>Situation and learner specific</td>
</tr>
<tr>
<td>Focus is on mastery of content</td>
<td>Focus is on new ways of learning using new technology enhanced learning tools and new thinking power</td>
</tr>
<tr>
<td>Learning is formal</td>
<td>Learning is informal</td>
</tr>
<tr>
<td>Setting is usually Physical Face-to-Face (PF2F)</td>
<td>Setting can be Physical Face-to-Face (PF2F) or Blended Cyber (BC) or Cyber Face-to-Face (CF2F)</td>
</tr>
<tr>
<td>Instructor provides content</td>
<td>Teams of learners and learning managers and subject matter experts create content</td>
</tr>
<tr>
<td>Instructor imparts ‘knowledge’ in print and/or via PF2F lecture (message delivery)</td>
<td>Learning managers facilitate learner participation in e-learning content development (conversation) in BC or CF2F environments</td>
</tr>
<tr>
<td>Emphasis is on passive decoding</td>
<td>Emphasis is on interactivity and encoding</td>
</tr>
<tr>
<td>Learners join a school or academic community to access prescribed content</td>
<td>Learners ‘surf’ virtual learning ‘spaces’ that are nodes on the network, anywhere and anytime, to access and create unlimited content</td>
</tr>
<tr>
<td>Learners exit knowing ‘what’</td>
<td>Learners exit knowing ‘what’, ‘how’ and ‘where’</td>
</tr>
</tbody>
</table>

Hastie, M., & Smith, R., (2010)

Clearly the Digital Age presents an opportunity for us to find answers to the hard questions about how information is identified as worthy of sharing by whom and with whom, and which digital tools are best suited to meeting diverse situation-specific demands.

Table 2: Traditional Content vs. Negotiated Content
With the literature emphatically stating that it is the teacher who is front-and-centre in the learning process, we investigate the changing role of the teacher: from learning manager to e-learning manager and information broker in the new e-learning paradigms. We explore the multiplier effect of the e-learning manager in identifying, esteeming and encouraging excellent teachers who, in turn, can be trained to use the digital tools to operate with learners in new ways and who, as a consequence, also become e-learning managers.

**Research Methodology**

In this paper we describe the emerging role of the ‘e-learning manager’ within a fledgling e-learning project in which the e-learning manager was able to facilitate and re-engineer the adaptation of the Hear and Say Worldwide professional training courses to achieve ‘best practice’ in the paradigm of Auditory-Verbal Therapy.

With hearing loss being the most common disability in newborn babies world-wide, the Hear and Say Centre in Brisbane, Australia, has been a pioneer and leader in the field of Auditory-Verbal Therapy (A-VT). The use of ground-breaking strategies to teach children with hearing loss how to listen and speak has meant that they enter school with language skills that match their age-equivalent peers (Dornan et al, 2009). The Founder and Managing Director of Hear and Say, Mrs Dimity Dornan, recognised the need to offer these world-class A-VT strategies to all children and, as a result, established Hear and Say Worldwide. There existed an urgent need to digitise the Hear and Say A-VT professional training program to recruit and train Auditory-Verbal Therapists to cater for the growing number of children being diagnosed with hearing loss world-wide. The Hear and Say Worldwide e-Learning Project was initiated in 2009 to meet this need.

Traditionally courses at Hear and Say had been delivered in a ‘Physical Face-to-Face’ (PF2F) mode. The content was delivered onsite with all participants physically face-to-face. The aim of the e-learning project was to move from a PF2F mode of delivery to a Blended Cyber (BC) mode of e-learning with a ‘Cyber Face-to-Face (CF2F)’ feature, as illustrated in Figure 2:

![Figure 2: Moving from traditional to cyber modes of delivery](image)

The establishment of the Hear and Say Worldwide e-Learning Project in 2009 was a direct response by the Hear and Say executive team to the critical need to recruit and train more Auditory-Verbal Therapists around the world to meet the growing number of children being diagnosed with hearing loss. As world-leaders in their clinical specialty area of hearing health, their ‘vision’ for e-learning centered around the use of new digital tools, specifically the synchronous cyber tools, to digitise the Hear and Say A-VT professional training course content. We describe the evolution of the e-learning project in achieving the Hear and Say ‘vision splendid’ in terms of a series of stages: from inception (Stage One), to asynchronous content development (Stage Two) and finally to the development of an optimal Blended Cyber mode of delivery (Stage Three).
**Stage One**

In 2009 the Hear and Say Centre was introduced to the Collaborative Cyber Community (3C) learning management platform by the platform administrator. The 3C platform was made available to Hear and Say for research and development purposes by the National Sun Yat-Sen University (NSYSU). The 3C is a synchronous learning management system (SLMS) which can support both an asynchronous cyber classroom and synchronous cyber classroom in a single system (Chen, et al. 2005; Chen & Wang 2008; Hastie & Chen, 2007). The Hear and Say Worldwide ‘Preliminary’ (Introductory Level) course, was developed and uploaded to the 3C platform by the end of 2009. It consisted of a series of PowerPoint presentations that had formerly been used in Physical Face-to-Face (PF2F) settings. The plan was to use the synchronous tools on the 3C platform to deliver the content using the PowerPoint presentations in a combination of a Cyber Asynchronous (CA) and Cyber Face-to-Face (CF2F) mode. The major component of 3C that is used is the synchronous cyber classroom with its cyber face-to-face feature (Wang & Chen, 2007 & 2009; Wang, Chen & Levy 2010). This meant the teacher or a team of teachers would present content using synchronous cyber tools to deliver a series of mass lectures, albeit technology enhanced mass lectures, to participants off-site.

**Stage Two**

The next stage of the e-learning project, commencing January 2010, involved the development of the ‘Intermediate’ (Level 1) and ‘Advanced’ (Level 2) courses. In 2010 a partnership was formed between Hear and Say and Education Queensland (EQ). A Senior Teacher at Brisbane School of Distance Education, Ms Megan Hastie, was subsequently seconded to Hear and Say to work with the e-learning project team in the role of ‘e-Learning Project Officer’. The partnership represented a ground-breaking inter-agency sharing of corporate knowledge that capitalised on the e-Learning Project Officer’s experience working on the EQ portal ‘The Learning Place’ and on the NSYSU 3C learning management system. This ensured that the Hear and Say Worldwide e-learning courses, once developed, would be available on both platforms.

The content for both the Intermediate and Advanced courses had been written or was in the process of being written by the Hear and Say Clinical Team. Like the Preliminary Course, the content for these courses consisted of multiple PowerPoint presentations that had been used in traditional PF2F settings.

The Intermediate Course was developed first. During this stage, the e-Learning Project Officer worked with the team to develop an e-learning model and maximise the potential of the ‘Blended Cyber’ (BC) mode of delivery. This placed a stronger prominence on the development of the content which became the asynchronous resource for the course. A major intervention by the e-learning project officer at this point was the development and application of an overarching instructional design framework for the e-learning project. The original course content had been written by a number of Clinical Staff and reflected their individual writing and teaching styles.

The instructional design framework was introduced to bring more pedagogical rigour to the content through a purposeful sequence of teaching and learning events. The aim was to maximise the engagement and interactivity of participants undertaking professional training in Auditory-Verbal Therapy in an e-learning environment.

Gagne’s (2004) Nine Instructional Events were adopted, as follows:

1. gain attention (reception)
2. inform learners of the objective (expectancy)
3. stimulate recall of prior learning (retrieval)
4. present the stimulus (selective perception)
5. provide learning guidance (semantic encoding)
6. elicit performance (responding)
7. provide feedback (reinforcement)
8. assess performance (retrieval)
9. enhance retention and transfer (generalization).

These were adapted for the e-learning model in the following way:
1. We welcomed participants and introduced each Topic
2. We stated the Objectives explicitly at the start of each Topic using an advance organizer
3. We included a Reflection exercise at the start of each Topic in which participants were asked ‘What do you already know about this topic?’
4. We embedded a series of interactive Tasks in each Topic as a stimulus to participant engagement with the content
5. We guided the learning of practical knowledge, skills and strategies in Auditory-Verbal Therapy using a combination of print, digital and multi-media resources
6. We provided opportunities for participants to practice and demonstrate their knowledge and skills during individual and group discussion in Cyber Face-to-Face sessions
7. We used a range of verbal and written communication tools to provide feedback between instructors and participants
8. We assessed performance through observation of participant interaction during the Course in Cyber Face-to-Face sessions and via a multiple choice examination at the end of Course
9. We worked with the participants to develop collegial networks to help them consolidate their knowledge and skills and transition to the Auditory-Verbal practitioner role.

With the Hear and Say Worldwide e-learning model evolving and the instructional design framework developed, the Intermediate course content was developed between January and July 2010.
In March 2010 a questionnaire was developed to help Hear and Say identify their current position in terms of e-learning practice, preferences and proficiency. This was designed to enable the identification of professional development opportunities that would support the design and delivery of the Hear and Say e-learning courses.
The Survey results indicated that:

100% of the Clinical Staff agreed or strongly agreed that e-learning will enhance their teaching of the Hear and Say courses. 93% of the Clinical Staff had no prior experience as an e-learning teacher. 84% were supportive or fully supportive and ready to transition to e-learning. While 77% of the Clinical Staff stated that they preferred to use a Blended Cyber mode of delivery. At this stage none of the Clinical Staff (0 %) felt adequately proficient using a Blended Cyber mode of delivery in their teaching. Thus a critical need was identified for Professional Development and training for the Clinical Staff in the use of the asynchronous and synchronous tools prior to the launch of the Courses.
The Intermediate course was scheduled to be run in July and this set a firm deadline in terms of the time and resources available to complete the e-learning adaptations and train the Clinical Staff in the use of the asynchronous and synchronous tools.
Subsequently the re-formatted PowerPoint presentations were uploaded to the 3C platform and Clinical Staff were trained in the use of the asynchronous tools. A successful trial of the Intermediate course in Blended Cyber mode was conducted in late July with the Clinical Staff as instructors. The majority of instructors and participants were physically present at the Hear and Say Centre in Brisbane with one participant joining via Skype from a regional centre. The course content was accessed in Physical Asynchronous (PA) mode from the local mainframe. Thus, the trial consisted of one variation of the Blended Cyber mode: a combination of Physical Asynchronous (PA) and Cyber Synchronous (CS) modes.

This marked a milestone for the project, as illustrated in Figure 3:

![Figure 3: From Physical Face-to-Face to one interpretation of the Blended Cyber mode](image)

Following the trial of Intermediate, another significant intervention was made by the e-learning project officer that contributed to a further evolution of the e-learning model. The intervention coincided with the revision of the Intermediate course content and mode of delivery and the opportunity this presented to use a more optimal variation of the Blended Cyber mode in future. This highlighted the need for someone to take a lead role in managing the overall design, development, and co-ordination of the e-learning project. Thus, the e-learning project officer role changed to that of ‘e-learning manager’. The revision of Intermediate proceeded with the amalgamation of the content that had traditionally been used during Physical Face-To-Face courses. This included the information in the PowerPoint presentations, accompanying teacher notes and teaching resources. These resources were developed, in alignment with the instructional design template, to create sequenced teaching and learning events that became the asynchronous resources for Intermediate. It meant instructors and participants in the Hear and Say Worldwide courses would, in future, be able to access the Intermediate course content on 3C from anywhere and at anytime in a range of situation-specific variations of the Blended Cyber mode.

**Stage Three**

The next stage involved the development of the content for the Hear and Say Worldwide Advanced Course. The deadline for completion was initially September 2010 but was extended to November 2010. With the Hear and Say Worldwide e-learning model now clearly defined and the content writers more certain of the expectations around e-learning, the development of the content for Advanced proceeded in a more time and energy efficient manner compared to Intermediate. The content for Advanced was written by a number of writers drawn from the Clinical Staff and the e-learning project team. It was shaped to fit the instructional design framework that had been developed earlier to maximise the interactivity of instructors and participants. The content for Advanced was completed and uploaded to 3C and The Learning Place in early November 2010 and a trial of Advanced undertaken.
The trial presented an opportunity for the e-learning manager to introduce instructors and participants to another variation of the Blended Cyber mode. This involved a Physical Asynchronous (PA) component whereby instructors and participants were physically present at the Hear and Say Centre and other regional centres and accessed the Advanced course content on 3C. It also included a Cyber Synchronous (CS) component which required the training of the Clinical Staff as instructors in the use of the 3C synchronous cyber classroom using JoinNet HomeMeeting. The e-Learning Manager provided this training, along with the 3C Platform Administrator, for all Clinical Staff (100%) and all participants (100%) involved in the Advanced Course trial. The e-Learning Manager then supported the instructors as they started working online via 3C in scheduled weekly synchronous cyber sessions. The participants for Advanced were located both onsite and offsite and were able to work onsite and offsite to link via 3C to access the asynchronous resources (CA). Some instructors and some participants were physically present at the Hear and Say Centre and some were offsite at other regional centres in Queensland (PS). This is illustrated in the screen-capture in Figure 4:

![Figure 4: Instructors and participants working in the 3C synchronous cyber classroom during the Hear and Say Worldwide Advanced Course](image)

Thus, the trial of Advanced was able to achieve the optimal Blended Cyber mode of delivery (PA + PS + CA + CS) and marked yet another milestone in the e-learning project, as illustrated in Figure 5:

![Figure 5: Achieving the optimal Blended Cyber mode](image)
Conclusion

In this paper we report on an Australian e-learning and e-health project in which the e-learning manager guided the application of technology enhanced teaching and learning solutions in the development of online courses. This was in the specialty area of training for hearing health professionals in Auditory-Verbal Therapy at the Hear and Say Centre Brisbane.

The major finding in our study is that it is possible for organisations like Hear and Say to make ‘quantum leaps’ into technology enhanced teaching and learning and move from a traditional physical face-to-face mode of operation to a Blended Cyber mode of delivery, and to create a new educational paradigm in the field of Auditory-Verbal Therapy. This required ‘vision’ on the part of Hear and Say in acknowledging the need to ‘go cyber’ and was achieved through an equally visionary and ground-breaking interagency collaboration between Education Queensland and the Brisbane School of Distance Education and Hear and Say. The partnership saw the sharing of corporate knowledge through the secondment of an ‘expert’ e-learning teacher to Hear and Say. It also involved collaboration with a leading tertiary e-learning institution, the National Sun Yat-Sen University, Taiwan. These types of arrangements have much to commend them and can enable leaders in the field of e-learning to play a transformative role in a range of organisations.

Second, this study corroborates current educational research (Hattie, 2003; Marzano & Pickering, 1997; Smith & Moore, 2006) that places the teacher front-and-centre in the learning process. In particular we identify the critical role of the e-learning manager in the Hear and Say Worldwide e-Learning project in the adaptation of content and in the training of teachers for e-learning. It is commonplace for organisations to assume that their information can simply be digitised and ‘uploaded’ in the name of e-learning. They have digital tools at their fingertips and know they must ‘adapt’ to stay relevant and competitive in a digital world (Hastie & Chen, 2010). However, the interventions that can be made by a skilled and experienced e-learning manager, as reported in this paper, can mean the difference between ‘best practice’ in e-learning and mediocrity. In this case the e-learning manager was able to develop a rigorous and pedagogically sound instructional design framework which was applied to the asynchronous course content (Hastie, Chen & Kuo, 2007), and was able to guide the development of an e-learning model that resulted in the achievement of the optimal Blended Cyber mode of delivery (PA + PS + CA + CS). The e-learning manager provided training and support for the Hear and Say Clinical Staff in the use of the synchronous tools (Hastie & Chen, 2006) and, as a consequence, helped them make a 100% paradigm shift - from Physical Face-to-Face to a Blended Cyber with a Synchronous Cyber feature. The e-learning manager was the conduit in this process (Hastie, Hung, Chen & Kinshuk, 2010). Thus, we say it is possible for an e-learning manager to work within a traditional educational paradigm and transform it into an e-learning paradigm. This requires a fundamental change in belief systems, worldview and mindsets at all levels of an organisation if the full potential of the digital age is to be realised and if new models, patterns and exemplars are to shape and define contemporary and future educational paradigms.

Third, this study identified an unrealistic expectation that newcomers to the digital age can make of the new digital technologies. In the early stages of the project the Blended Cyber mode had been interpreted as Physical Asynchronous and Cyber Synchronous (PA + CS). This would have resulted in an over-reliance on Voice over Internet Protocol (VoIP) for the delivery of the asynchronous
resources. The inadequacies of VoIP due to audio lag and lack of clarity are common and well known and a reliance on it may have dealt a fatal blow to this fledgling e-learning project. The e-learning manager was able to circumvent this through the introduction of the optimal Blended Cyber mode and through the wider suite of tools that the synchronous cyber classroom provides (Hastie, Chen & Todd, 2008; Hastie, Chen & Leeming 2009). Finally, the multiplier effect of the e-learning manager in training more teachers to make the transition from traditional to e-learning teachers was evident in this study. This will in turn have a multiplier effect as more e-learning teachers use the digital tools to work with students around the world. In the Hear and Say Worldwide e-learning Project this means children diagnosed with hearing loss can have access to Auditory-Verbal Therapists who have been trained by world-class Clinicians using a robust and pedagogically sound e-learning model and state-of-the-art asynchronous and synchronous tools. It is indeed a re-engineered educational paradigm, and potentially life-changing for thousands of the world’s most vulnerable children.

Implications for Future Research
The Hear and Say Worldwide e-Learning Courses will be shared globally commencing 2011. There will be a need to monitor, evaluate and refine the e-learning model, the course content and the asynchronous and synchronous tools. A valuable opportunity exists to undertake further research into the use of the Blended Cyber mode of delivery and to test the various options it offers. In short, as the Digital Age unfolds, we must continue to find answers to the hard questions about how information is identified as worthy of sharing by whom and with whom, and which digital tools are best suited to diverse situation-specific demands. The potential for much good work is at our fingertips and it is all about e-learning – guided by a skilled e-learning manager.
References


Advantages of Using Technology in Teaching Geosciences: Case Study of Structural Geology, KFUPM, Saudi Arabia

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Abstract
Using technology in education (e-learning) has several advantages among them is the flexibility, availability and teaching enhancement through simulations and interactions. Most of those features can be achieved through using (Learning Management System). However, the most important and significant advantage is students engagement and participation in the subject. This paper summarizes the experience of teaching a geosciences course using Bb. CE. 8 (Blackboard Campus Edition 8) as a L.M.S (Learning Management System). Students’ engagement and involvement in the subject was achieved through using features available within the Bb., CE 8. The paper will demonstrate how successful using features such as; discussion, mails, content editing, grading, tracking .. etc in attaching and engaging students to the subject of the course. It will also exhibit how those features can improve students analytical capability and acquiring knowledge in the subject.

In addition, the pedagogical impact and educational goals that achieved through using technology in teaching this course are also provided. The experience discussed in this article can be utilized in other courses of similar nature. It can also be considered among the good practices that need to be applied to enhance teaching.

Using eLearning in Teaching Geosciences
The geosciences subjects are very much attached to technology in regard of their teaching and applications. Makkawi, et al. (2003), classified the Earth Sciences courses into three categories; courses that utilize computer software in laboratory demonstration and hands-on through problem-solving procedures and data analysis, courses that depend heavily on the computer and cannot be taught without its power and courses that use computer software, textbooks’ complimentary CDs, and the internet as supplementary tools (Makkawi, et al. 2003). Dubrin, (2002) demonstrated how the utilization of computers as a presentation tool together with Internet as a means of education in Earth Sciences can increase students’ exposure to course content, increase exam scores, and knowledge of the subjects. In addition, using technology in teaching geosciences courses were also practiced since the year 1998, in the form of fully online courses at Georgia Perimeter College (Gore, 2000).

**Structural Geology and the use of L.M.S (Bb. C.E.8)**

Undergraduate Structural geology (Geol 305) is a core subject in geosciences that needs analytical, descriptive and imaginative skills. The course is a core course that is required by all geosciences students in the department. Students in the courses are from both undergraduate geology and geophysics majors. The course is offered regularly every academic year.

The subject concerned with the study of Earth structures; folds, faults, and all other types of structures. Analyses of those structures; their geometry, sizes, way and process of formation and deformational history with time are very essential. In addition, topics of structural geology required a substantial capability of a three dimensional visualization and deep learning. Using of Blackboard C. E. 8 as (L.M.S) learning management system can help in achieving those educational goals of structural geology. This article discusses the use of Bb C.E. 8 in teaching Structural Geology (Geol 305) in semester (101) fall semester of 2010-2011 academic years. Learning and teaching features available within the Bb C.E. 8 such as course content, discussion, announcement, tracking and grade book were used in teaching the course. Number of students attended the course is seven six of them is undergraduate and one is graduate student who is taking the course as deficiency requirement.

All the course material is uploaded to the Bb. C. E. 8. in the course content page, folders of course presentations, course resources, and discussions were also created (Figure 1). Instructor’s Web. Page was also made available in this page (Figure 1).

The course presentations folder includes all the class presentations and some of lab. presentations (Figure 2). The discussions folder included all discussion topics that assigned weekly and bi weekly to students (Figure 3). Discussion topics are of two types threaded and blogged. The aim of having the two types is to train student on the two methods of posting discussion in order to enhance their communication skills. Example of the discussion and students contribution is shown in Figure 4.
Figure 1: Snapshot shows the Course Content page in the B.b. C. E. 8 for structural geology (Geol 305), fall semester 2010-2011 academic years.

Figure 2: Snapshot of the Course Presentations page shows the links to different class lectures PPT and to the instructor web page.
Course resources folder includes all quizzes, exams that conducted during the semester (Figure 5). This folder is regularly updated with the past quizzes and exams. This folder is considered a good reference for students for reviewing and studying the course subject and revising old exams and quizzes.
In addition to the course content features the grade book facility available in the Bb. CE. 8 was used to update students with their performance during the semester. All activities and exams marks are displayed in this page and it is updated very frequently. This procedure of providing continuous and prompt feedback to student is very important as it is one of the seven good practice in undergraduate education (Chickering, and Gamson, 1987).
Advantages of using the L. M. S. (Bb. C. E. 8) in Teaching Structural Geology (Geol 305)

Using Blackboard C. E 8 as L.M.S (Learning Management System) has several advantages that may not be achieved if the L.M.S. is not used. The most important advantage is to make the course presentations and resources available for students asynchronously. This will help students to revise the subject on their own time and recover any missing information that might not be grabbed during the class time. The L. M. S. is the best tool to initiate and practice discussion and communication with students. This issue is very important to engage students and enable them to participate actively in the course subject. In addition, this exercise will create within students’ critical and creative thinking. It might also be used to enhance students reading through reading an assignment (article) and summarize and discuss it through discussion. Moreover, utilization of the L.M.S (Bb. C. E. 8) can help in building the scientific search capabilities and analysis skills of students through searching of the internet for scientific articles, materials and case studies that are related to the course and comment on them in the discussion.

The use of (L. M. S.), learning management system will allow prompt feedback and update students about their performance through the grade book facility. This issue is one of the important principles of the best practice in undergraduate education. The L. M. S. also allowed effective teaching through providing links to multimedia resources in the internet. This issue is very crucial in teaching geology courses as geology subject is depending heavily on observation and analogy. Links to sites that show geological features and active geological phenomena (like volcanoes, earthquakes.. etc) will help students to understand and engage with the topic. It is very effective too in structural geology as there currently many simulation and animation videos available in the Internet that show how folds and faults form and the stress direction and involvement in those structures.

Tracking of students and course material percentage of utilization are other important features that are provided in the Bb. C. E .8. Those features can indicate and reflect the level of students’ engagement with the subject and which part of the subject is more frequently used. (Figure 7). In addition, the L. M. S. is a very efficient tool that can be used for easy and prompt communication with students through e mails and announcement. Taking into consideration all the above capabilities and advantages of using the Bb. C. E. 8 as L. M. S. it should be emphasized that the only encouragement and incentive for students to use and participate effectively in the Bb. is to assign part of the course mark to this activity. In this particular case 15% of the course mark was assigned for the contribution and participation in the Bb. (L. M. S.) mainly for discussion. Most of this mark is assigned for providing case studies and Internet material that related to the course subjects.
Educational and Pedagogical Goals Achieved Through this Experiment

Several educational and pedagogical goals were achieved through this experiment. In using the L. M. S as educational technology tool the issue of student-centered learning was achieved. This issue was demonstrated when students were requested to contribute to the subject by providing additional learning material from the internet and other sources and upload them in the discussion board. It has been observed that this practice has enhanced and enriched students scientific search capabilities. It will also provide students with self confident and build within them skill of selection of material that is directly related to the subject of the course or discussion item. The selection of the right material also indicates that students have comprehended and understand the topic well. Students’ contribution to the discussion and reflection on each other writing enhance the writing and communication skills. It is also considered one of the good practices in education (i.e. active learning of Chickering, and Gamson, 1987). This practice will also develop a scientific criticizing skill within the students through their reflections on each other posting. Frequent communication through mails and other provided features in the L. M. S and availability for their inquires outside class time is also one of the good practice of Chickering, and Gamson, (1987); encourages contacts between students and faculty.

One of the seven good practices in education is providing prompt feedback and this issue was successfully practice in this experiment. All tests results and exams are uploaded directly through the grade book feature. Emphasizing time and task is also one of the good practice and it was implemented through the deadline for contribution to discussion and other assignments.
Conclusion
Utilization of technology in teaching structural geology was very fruitful and important experience. It can help in engaging students with the course material, and creates deep- and critical thinking learning within them. The availability of the course content through the L. M. S. is very helpful for students as it will allow them to review the course material and recollect the missed information from class asynchronously on their own time. Discussion feature is a very helpful and essential tool for engaging students and creating critical thinking and analytical skills within them. However, discussion topics should be designed to address those pedagogical talents. Students should be requested to contribute and comment and reflect on each other contribution in fixed deadlines. Some discussion topic can enhance the reading and analyzing capabilities of students through providing links to reading assignments (articles) related to the course material and students are requested to read summarize and analyze and deduce information.
Other advantage of using technology in teaching the course is the continuous communication and availability for students even outside the class times. Continuous and prompt feedback on students’ performance is very essential and considered one of the best practices and can be achieved through using the grade book feature. Tracking students and their activities is another important feature within the Bb. that can be used as a measure of students’ engagement and commitment to the course.
Finally, using technology in teaching structural geology (Geol 305) course in KFUPM was a very successful experience. Several pedagogical and educational goals were achieved. The experiment can be applied on teaching courses of similar nature. It can also be considered as essential for future teaching as it fulfill many good pedagogical and teaching requirements, and meet the current students’ needs. However, good and well defined designing strategy to reach those goals is needed to be considered by the instructor in early stages. Moreover, the main incentive and encouragement for students to be more active and involved in the exercise is through assigning specific percentile of the course mark for this activity. This percentile mark should be announced to students in the course syllabus and in the first class meeting.
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The Ability of Social Networks to Enhance Student Feedback Mechanism

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Abstract
This paper will investigate the abilities of social networks to improve student feedback mechanisms and the course evaluation avenues. This paper will be divided into four sections. In the first section, the important characteristics of constrictive feedback will be presented. Then, the current practice of student feedback and course evaluation will be investigated in the second section, highlighting the limitations and challenges to be overcome. In third section, the paper discusses social networks through definition and the great characteristics of social networks, providing exemplars of social networking sites. These three sections will lead the reader through an investigation of the topic, which is the ability of social networks to enhance the quality of evaluation and student feedback. The target of this paper is to help universities and organizations obtain feedback methods that will be beneficial to them.

Keywords: Student Feedback, Social networks, web2.0, E-learning

Introduction
For several decades, universities have used student feedback to enhance the educational performance of their teachers, staff, and services (Williams and Kane 2009). Many mechanisms are used in evaluations, including face-to-face, written feedback, email, or online forms (Dommeyer and Moriarty 2000). Several studies investigate these kinds of channels and to what extent these channels improve the quality of evaluation (Brennan and Williams 2005) (Dommeyer and Moriarty 2000; Fyfe 2010); (Hazari and Schnorr 1999); (Keil and Johnson 2002); (Evans and Mathur 2005).

Many higher education institutions around the world collect some type of feedback from students about their experiences of higher education (Hazari and Schnorr 1999; Harvey 2001). ‘Feedback’ in this sense refers to the expressed opinions of students about the services they receive as students (Brennan and Williams 2005). This may include perceptions about the learning and teaching, the learning support facilities (libraries, computing facilities, etc.), the learning environment, (lecture rooms, laboratories, social space, university buildings, etc.), support facilities (refectories, student accommodation, health facilities, student services, etc.), and external aspects of being a student (finance, transport infrastructure, etc.). Student views are usually collected in form of ‘satisfaction’ feedback(Hattie and Timperley 2007).
Student feedback is collected by several mechanisms. Several studies identified theses channels, including traditional feedback mechanisms like face-to-face and written feedback (Rotem and Glasman 1979; Ovando 1994; Wachtel 1998; Ranchhod and Zhou 2001). While, traditional feedback improves social communication abilities, such as talking and collaboration (Villamil and De Guerrero 1996), they have some limitations such as lost or forgotten papers (Palmquist, 1993; Sullivan, Brown, & Nielson, 1998) and require more cost and effort (Tuzi 2004). As a result, many educational institutions have switched to electronic channels, using email and online forms (Bachmann, Elfrink et al. 2000; Guterbock, Meekins et al. 2000; Ranchhod and Zhou 2001; Keil and Johnson 2002; Moss and Hendry 2002; Evans and Mathur 2005). Di Giovani and Nagaswami (2001) have said that e-feedback offers a superior way to monitor conversations. While online peer feedback is available to the instructors, they could track the conversations and supply guidance to writers who required it. Feedback through Email for example is more valuable and easier to use than the traditional written feedback (Tuzi 2004). However, email is less social than traditional face-to-face or telephone communication as a result of ‘its inability to provide the same level of nonverbal cues’ (Keil and Johnson 2002). As result of some limitations of the current systems of feedback, this paper will investigate the ability of social networks to solve these limitations and to improve course evaluation and student feedback. This paper will be divided in to four sections. In the first section, it presents the characteristics of constructive feedback that should be known. Then the current practice of student feedback and course evaluation will be investigated in the second section, highlighting the limitations and challenges to overcome. In the third section, this paper discusses social networks through definition and the great characteristics of social networks, providing examples social networking sites. These three sections will lead the reader through an investigation of the topic, which is the ability of social networks to enhance the quality of evaluation and student feedback. The target of this paper is to help universities and organizations obtain feedback methods that will be beneficial to them.

**Characteristics of Constructive Student Feedback**

**Introduction**

Constructive feedback plays an essential role in educational development (Ovando 1994). Many studies have investigated and highlighted the major characteristics of student feedback ((Rotem and Glasman 1979; Ovando 1994; Hazari and Schnorr 1999; Hattie and Timperley 2007; Williams and Kane 2009). Nowadays, many universities use student feedback as course evaluation to provide formative evaluation for instructors during the semester (Sadler 1989). By using this evaluation technique, Teachers can get immediate feedback on course material, teaching style, and student progress in order to make necessary adjustments (Hazari and Schnorr 1999). This chapter will illustrate the importance of feedback in the educational field and will show the characteristics of constructive feedback and the evaluation process. The importance of this chapter is to create a proposed model of constructive feedback that can be used to identify the limitations of current practices of student feedback.

**Defining Feedback**

The literature has defined ‘feedback’ in a number of ways. Hattie and Timperley (Hattie and Timperley) provide useful definitions by explaining that feedback generally refers to information provided by an agent (e.g., teacher, peer, book, parent, self, experience)
regarding performance and understanding. Spector (Spector 2008) defines feedback as ‘all post-response information that is provided to a learner to inform the learner on his or her actual state of learning or performance’. Ovando (Ovando) and Harvey (2001) describe student feedback as expressed opinions about learning facilities (e.g., libraries and computing services), learning atmosphere (e.g., teaching rooms and university buildings), support facilities (e.g., student accommodations, student services), or other aspects (such as finance or transport infrastructure). Moreover, feedback has been defined as information given about the gap between actual performance and the performance goal in order to help achieve that goal (Sadler 1989).

The Importance of Student Feedback

With the expansion of the university sector, the concerns with quality, and the growing ‘consumerism’ of higher education, there has been a significant growth of and sophistication in processes designed to collect views from students (Harvey 2001). Feedback is one of the most powerful influences on learning and achievement (Hattie and Timperley 2007). Each element of the education process (teacher, student, and university) requires evaluation of the current condition and understanding of what is needed to improve, as well as what skills can be developed into strengths (Millar 2008). As Laurillard (1993) says, ‘action without feedback is completely unproductive for the learner’. This principle is essential in our personal live as well as in educational processes. We benefit from feedback, whether it is self-criticism or external feedback, to guide our deeds and develop our opinions and values (Millar 2008). As (Folkman 2006) said, ‘[w]ithout feedback, we are flying blind’. According to another definition, others observe things we cannot see. As a result, student feedback is important for universities and teachers because this feedback highlights the strengths and weaknesses of their actions.

Using this argument, we can infer that feedback is a very powerful tool. Many researchers agree that student ratings are a valid, reliable, and valuable means of evaluating teaching (Wachtel 1998).

Characteristics of great student Feedback

It important for any educational organization to know the model and characteristics of good feedback before implementing a course evaluation system and asking students to give feedback(Bee and Bee 1998). Several studies highlight the characteristics of great and constructive feedback, such as (Bee and Bee 1998), (Bergquist and Phillips 1975), and (Ovando 1994). As a systematic process to facilitate successful teaching and learning, constructive feedback may be distinguished by the following characteristics:

Relevant – Feedback should address student, teacher, specific learning, and teaching performance, in addition to achievements, needs, and interests (Ovando 1994).

Immediate and Timely – Feedback should be provided as soon as information about student and teacher performance is available; the constructive feedback should be close to the event (Bee and Bee 1998).

Factual – Feedback should be based on actual student achievement (performance on a test, assignment or project) and teacher’s instructional performance and assessment; (Bergquist and Phillips 1975).

Tailored – Feedback should be designed to meet an individual student’s or teacher’s specific needs and circumstances (Ovando 1994); (Brookhart 2008).

Helpful – Feedback should provide suggestions for improvement of teaching and learning (Ovando 1994).

Confidential – Feedback should be given directly to a student or teacher without an intermediary (Bee and Bee 1998); (Bergquist and Phillips 1975); (Ovando 1994).
Respectful – Feedback should respect students' and teachers' integrity and needs (Bee and Bee 1998); (Ovando 1994).

Encouraging – Feedback should motivate students and teachers to increase teaching and learning efforts (Ovando 1994); (Brookhart 2008).

Appropriate Mode: Feedback can be delivered in many modalities. The appropriate mode plays an essential role for constructive feedback (Brookhart 2008).

So far, through the literature review, some characteristics of great feedback that should be considered when deciding to write feedback or making evaluations have been listed. The next section aims to identify some issues and problems that make student feedback isolated and the issues that affect student participation and engagement in educational environments.

Limitation and Lack in the Current System

In this part, we will investigate, through the literature review, the limitations and challenges in the current practice of student feedback and course evaluation. Many studies highlight some limitations of feedback methods and evaluation techniques. This chapter leads us to understand the current problems with student feedback mechanisms. The investigation will contain traditional techniques as well as email and online forms technologies. By highlighting these problems, in Chapter 4, we will discover the abilities of social networks to overcome these limitations.

From the literature review, we summarize the several limitations and issues. Some studies focus on traditional feedback systems (Ferris & Hedgecock 1998; Mendonça & Johnson 1994; Mittan 1989). Others focus on email and electronic forms (Kwak and Radler 2000; Guterbock et al. 2000; Medlin et al. 1999; Sheenan 2001; Dommeyer and Moriarty 2000). This chapter will summarize the limitations and issues from these studies.

Low Response Rate

Several studies illustrate low response rates for email and web-based questionnaires. Kwak and Radler (2000), in their study, obtained a low response rate for email – only 27% in a sample of college students. According to Guterbock et al. (2000), there is a 37% response rate for web-based surveys. Similarly, Crawford et al. (2001), achieved a 34.5% response rate in a college web-based survey, while Ranchhod and Zhou (2001) obtained just 6% in an email survey. Sheenan (2001) examined response rates for email surveys since 1986 and found a decline from an average of 46% in 1995/1996 to 31% in 1998/1999. These results indicate a low response from students and a lack of interest in providing feedback through email and web-based surveys.

The Length of Survey

The questionnaire should be as short as possible, and the time estimate in the invitation to participate should be realistic to minimize dropouts (Moss and Hendry 2002). Evaluation forms should be short and easy to encourage student participation and engagement (Sheehan 2001). The length of the survey is seen to have a negative influence on mail survey response rates in that the longer the survey, the more likely it is that the response rate will be lower (Yammarino, Skinner et al. 1991).

Accessibility

In the Crawford et al. (Crawford, Couper et al. 2001) study, password access was found to have a significant effect on response rate. Those students who had to type in a password that was included in the invitation email had a higher non-response rate (67.8%) than the automated password entry group (63.2%). Hier hypothesised that more complicated
access may lead to less motivated respondents. They found that the password screen increased the difficulty of accessing the survey and thus decreased the response rate.

Several researchers have indicated that ease of access to the survey page is important. (Dommeyer and Moriarty 1999), for example, showed that a survey that was easy to access had a response rate five times higher than an attached questionnaire that was more difficult to access. Ranchhod and Zhou (2001) recommend the use of plain and simple designs to minimize download time and to reduce the need for complex Internet skills to navigate the form.

Follow up

In a 2006 survey, which rated courses on the verdicts of 157,000 final-year students from most UK institutions, feedback and assessment were not considered ‘up to scratch’ (Shepherd 2006). A fundamental element of the Student Satisfaction Approach is that action based upon the survey results is planned and implemented (Harvey et al. 1997). Indeed, research has suggested that the most important element in an institution’s response to student feedback, arguably, is that transparent action is taken and fed back to the students (Watson 2003; Powney and Hall 1998).

We have mentioned several issues that affect the current practice of student feedback in higher education. These limitations currently exist in some evaluation methods and feedback channels that are provided to teachers and universities by students. By highlighting these issues, the next section will shed light on social network characteristics that will be taken as model to solve these issues.

Characteristics of Social Networks

The Definition of Social Networks

A social network is defined as relations among people who deem other network members to be important or relevant to them in some way (Wellman 1996). Online social networks are Websites where people create their own virtual space (or home page) on which they post pictures, write blogs, share ideas, and link to other Web locations they find interesting (Lai and Turban 2008). Yuen (2008) defined social network sites as web-based services that allow individuals to build a public profile within a limited system, express a list of others with whom they share a connection and view their list of connections as well as those made by others within the system. With the recent advancements in Web 2.0 technologies and the popular role of social media, social network applications have great potential in education because of their open nature, ease of use, and support for effective collaboration and communication (Yuen and Yuen 2008).

Social networks cover a broad area of online environments, with many formal definitions broad enough to encompass almost any Web 2.0 collaborative environment (Alexander 2006). Although a variety of public social collaborative environments existed on the Internet as early as the 1980s, the emergence of social networks as it is best understood today arose with the large commercially-supported sites like Friendster (2002), LinkedIn (2003), MySpace (2003), and Facebook (2004), along with content-sharing platforms such as Flikr (2004) and YouTube (2005). With the development of Twitter in 2006, social networking took a new twist that increased immediacy and incorporated mobile phones into the social mix (Hoffman 2009).
Why Social Networks?
Online social networks are becoming the heart of some very popular Web sites. Nowadays, many universities apply e-learning and technologies in order to keep pace with the requirements of society. It is also likely that social networking will play an important role in future personal and educational online interaction. (Hoffman 2009)

Social networks provide various advantages in the educational context, such as collaboration, knowledge sharing, common interests, active participation, and reflective thinking (Mazman and Usluel 2009). With these features, social networks can be useful for student feedback and course evaluation. From this viewpoint, it is suggested that social networks provide an opportunity to choose the best-fit tool for interaction (Baird and Fisher 2005); Mazer 2007). In addition, social networks influence interaction positively between students-teacher and students-students by creating more cordial environments (Selwyn 2007).

Characteristics of Social Networks
The socialization process differentiates a Web 2.0 social networking community, and some earlier virtual communities from traditional Web 1.0 Internet groups. The process of socialization involves activity where people are shaped by the norm, culture, and value of their identified group (O’Reilly 2005; Boyd 2006). The following are representative values of Web 2.0 social groups.

1. Participation- Web 2.0 social network sites leverage user self-service to reach out to the entire Web; that is, to the edges and not just to the centre (Anderson 2006).

2. Harnessing Collective Intelligence- The competitive advantage of social networks sites almost entirely rests on the critical mass of participants. Therefore, the key to group dynamics is the network effect from user contributions (Surowiecki 2004).

3. Promotion- The Web 2.0 social network relies on promotion via word-of-mouth. This is done when users advertise a site, a service, activity, event, or a product by sharing with others their positive experiences (Phelps et al. 2005).

4. Innovation in Assembly- By integrating services provided by different individuals, Web 2.0
communities can create value. This is what Web 2.0 is all about-creating something new and valuable (Lai and Turban 2008).

5. Pull but not Push- Pull systems let people bring to them the relationships and content that they want. This is instead of having an external entity force it upon them. In Web 2.0 social media, people and not pushers are in control of the conversations.

6. Cooperation, Collaboration, but no Control- Web 2.0 applications are built of network of cooperative data services. Therefore, there is no control on data use at the other ends of the connection.

**Examples of Educational Feedback in Social Media**

There are multiple social networks platforms with multi-functional uses for education. As we know, in the characteristics of social networks, collaboration and participation are the important features of social networks. These features help students and teachers communicate and deliver feedback to one another. Below, some effective social networks platforms for educational feedback are presented.

**Facebook**

Facebook has quickly become the social network site of choice by college students and an integral part of college experience (Selwyn 2007). Since its 2004 inception, virtually all colleges in the United States (and growing internationally) have designated college networks within the site. The adoption rates of Facebook in universities and colleges are remarkable; 85% of college students that have a college network within Facebook have adopted it (Arrington, 2005). Furthermore, Facebook also has a growing audience in perspective high school and middle school students.

Recently, Facebook has opened up development of downloadable applications, which can further supplement the educational functions of Facebook. Many of these technological tools mirror those found in currently employed courseware programs (e.g., blackboard, moodle, etc.). Beyond high usage rates and some technological advantages, social networks, such as Facebook, can provide numerous other pedagogical advantages to both teachers and students (Munoz and Towner 2009). Facebook has useful applications for evaluations and feedback. Universities or teachers can use these tools to share with students and gain their feedback (Facebook 2010). For example, Facebook has built-in survey and polls builder (figure 2) that is a suitable platform for student feedback and evaluation. In addition, Facebook allows integration with other survey providers, such as (polldaddy.com), to use these forms on Facebook.
Twitter
Twitter, a micro-blogging service less than three years old, commands more than 41 million users as of July 2009 and is growing fast. Twitter users tweet about any topic within the 140-character limit and follow others to receive their tweets. The goal of this section is to study the topological characteristics of Twitter and its power as a new medium of information sharing (Kwak, Lee et al. 2010).

Twitter.com is an online social network used by millions of people around the world to stay connected to their friends, family members, and co-workers through their computers and mobile phones. The interface (Figure3) allows users to post short messages (up to 140 characters) that can be read by any other Twitter user. Users declare the people they are interested in following, in which case they get notified when that person has posted a new message. A user who is being followed by another user does not necessarily have to reciprocate by following them back, which makes the links of the Twitter social network directed (Huberman, Romero et al. 2009).

From an educational prospective, Twitter can be a useful way for feedback between student and teacher and formative assessment. Teachers can get feedback after class immediately from students.
Dear QUT

Another Kind of feedback that students may provide to an organization or university is expressing opinions about learning facilities (e.g., libraries and computing services), learning atmosphere (e.g., teaching rooms and university buildings), support facilities (e.g., student accommodations, student services) or other aspects (such as finance or transport infrastructure) (Ovando). Despite this, universities and educational organizations establishing social platform to hear from their students have experienced short comings, and so have students tiring to establish external social network platforms to post their opinions about the university, the services, and staff. For example, some students from QUT University established a social feedback platform called deerqut.com (figure 4). Basically, this platform was partially designed for students, staff members, and visitors of Queensland University of Technology to contribute and listen to conversations about QUT (QUT 2010).

Figure 3: Twitter dissections wall between teacher and his students

lisadennys Great call today with @denisewakeman, @loubortone. Time to buy my Flip camcorder and get with doing videos for my blog! Thanks ; great tips!

about 22 hours ago from TweetDeck

LifeCoachMary @loubortone@DeniseWakeman Great call today! Learned LOTS of great tips today...going to order my Sony Vegas Movie Studio ;-) 

about 22 hours ago from Seesmic

BeaVanni #OVRN @DeniseWakeman, WOW! As usual Denise & Lou on steroids gave us the latest for using online video, the best sites & build business.

about 22 hours ago from web

IntuitiveBoston Had another great video class with Lou Bortone and Denise Wakeman.

about 22 hours ago from web
Example of Business Experiences
We will take one example from a successful approach carried out in businesses to see to what extent companies and businesses are applying and employing social network technologies to enhance customer feedback mechanisms. Dell has established private social networks for their customers called ‘Dell Community’ (Figure5). The company can obtain useful information about problems with its products as well as customer feedback in general (Beath, Konana et al.).
This is happening in businesses, and companies are benefiting from social networks to build relationships with their customer and to build quick and easy ways to gain customer feedback. The question is raised then: what about the university? Everyone knows that students are the university’s business. Consequently, why do universities not invest in these digital platforms and benefit from business approaches.

Investigation of How Social Networks can Enhance Existing Problems of Student to teacher and University Feedback

As we mention earlier, there are some limitations in the current systems of feedback in the educational environment that need to be enhanced. In this paper we suggested social networks as an appropriate choice because they have great abilities and features to help them be an appropriate choice for feedback channels. Moreover, most higher education students are already using social networks; the ECAR study (2008) reported that 85 percent of students use online social networks. With the growth in provision of Wi-Fi networks at many venues and the potential for use of 3G telephone networks for data transfer, as well as the increase of smart phones among students, we may start to see the benefits of social networks in educational environments are more popular (Kelly 2008).

Discussion

Social networks have great characteristics, such as participation, collaboration, promotion, and more, that may enhance the existing issues of feedback mechanisms. A low response rate is a major problem facing many universities nowadays. Other limitation, such as accessibility, length of survey, and follow up, are some of the low response rate causes. For accessibility, Crawford (2001) reported that more complicated access may have filtered out less motivated respondents. In addition, the length of the survey is seen to have a negative influence on mail survey response rates in that the longer the survey, the more likely it is that the response rate will be lower (Herberlien & Baumgartner 1978; Steele, Schwendig & Kilpatrick 1992; Yammarino, Skinner & Childers 1991). Furthermore, as Tambor and Chase (Tambor, Chase et al.) said about the importance of follow up and its relationship with response rate one of the most powerful tools for increasing response is to use follow-up. By linking the three limitations with response rate, we conclude that if these three limitations are solved or enhanced, the response rate will be increased.

Social networks offer great features and possibilities to make evaluation mechanisms more accessible and easier. As Yuen (2008) reported, social network applications have great potential in education because of their open nature, ease of use, and support for effective collaboration and communication. For example, students can easily access Facebook and send feedback to teachers by typing on the walls or sending private messages to them. Moreover, teachers can post polls on the walls and ask students to participate in these polls. With the dramatic increase of smart phone use by students, they can participate in the evaluation and providing feedback by completing the survey wherever they are. By offering accessibility, social networks can by useful cannels for providing student feedback and positive evaluation tools.

Another issue of the current system is survey length. Moss and Hendry (2002) confirmed that the questionnaire should be as short as possible, and the time estimate in the invitation should be realistic to minimize dropouts. By using social networks platforms, the surveys, pools, and questions can be made as short as teachers want, with the ability to integrate services provided by another
website. For example, Facebook (Figure 6) allows the creation of surveys or polls using Facebook applications. In addition, Twitter integrates with other surveys and poll providers such as (polldaddy.com) to share student opinions. By making surveys short, student participation the response rate is increased.

![Figure 6: snapshot of random Facebook survey](image)

The third issue that effects responses rate is ‘follow up’. A fundamental element of the Student Satisfaction Approach is that action based upon the survey results is planned and implemented (Harvey et al., 1997). Participation is the advantage that allows teachers and universities to respond to students after they provide feedback or participate in the evaluation method, and social networks thrive on participation. Moreover, social networks have applications to analyse the surveys, questions, or general student feedbacks.

By taking Dell Community as model, universities can establish private platforms. Throughout this community, universities vacate to students several tools to participate with the universities and to share ideas. Universities can comment and follow up with students through blogs, wikis, and forms. If these strategies are put into action, the follow up will develop and response rates will increase. As we see, social networks have the ability to enhance student feedback mechanisms and evaluation modes.

**Recommendations**

At this point, we agree that social networks can be a great choice for enhancing feedback mechanisms and evaluation methods in the educational field. Universities and educational organizations should concentrate more on social media tools to be closer to their students and to enhance communication bridges between students and teachers. This paper suggests some scenarios to help make the picture more obvious and simple.

**Scenario 1 – Using Social Networks for Distributing Surveys and Polls**
Social networks have the ability to be appropriate avenues for distributing course evaluation surveys and polls to students. As we mentioned earlier, the advantage of social networks is the integrating between Web sites. The next scenario will describe this advantage.

1. Now, several social networking sites, such as (polldaddy.com), specialize in survey and poll design.
2. This website allows you to integrate a survey with many social networking sites, such as Facebook, twitter, and wordpress.
3. Teachers or universities can easily share this survey with their student through social networks.
4. Students can avoid difficulties of email and web forms by completing the survey without moving out of this platform.

Scenario 2 – Build Private Social Networks for Student Feedback

As we mentioned, private social networks had great success in businesses environments. As a result, reasonably, universities should apply this experience.

1. University establishes a new private platform like the Dell social network for their students and staff.
2. They open private channels with students to listen to their conversations and feedback.
3. Universities build internal blogs and Wikis to enhance the educational process for student participants by allowing the students to post their ideas and experiences.
4. Teachers can benefit from social networks to gain feedback and assessment from their students.

Scenario 3 – Use Social Networks as Formative Assessment

Formative assessment is a kind of student feedback. (Cowie and Bell 1999) define it as the bi-directional process between teacher and student to enhance, recognize, and respond to the learning. Social network technology allows students to assess their teachers and learning process. The following scenario explains how this process is happening.

1. Teachers use Twitter for formative assessment.
2. Teachers, after class, post a question or two through Twitter and asks students to participate before the next class.
3. This way increases the response rate and teachers can use this feedback to improve his or her weekly teaching.
**Conclusion**

We have mentioned several characteristics of great feedback. Great feedback is relevant, immediate, factual, helpful respectful, encouraging, and in the appropriate mode. We highlighted some limitations of the current system, such as low response rate, survey length, accessibility, and follow up, as well as some of the advantages of social networks, such as participation, harnessing collective intelligence, promotion, innovation in assembly, pull but not push, and cooperation.

Social networks can enhance the current feedback system by increasing response rates and accessibility by using the social networking platform to assess forms and to communicate at the same time. Twitter can be used as a tool for formative assessment after each class. Building a private social network can help a university to respond and follow up on student feedback, encouraging the students to be more active.
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Using eTextile for Game-based Learning in the UAE

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Abstract
Recent research shows that low physical activity in children causes mental and physical health problems. In UAE, another consequence of this has been the virtual disappearance of traditional outdoor games like Al-Saqla and Al-Ghomaid. Therefore, in addition to being susceptible to suffering from mental and physical problems, UAE children are also losing touch with an important part of their cultural heritage. To address these problems, this paper describes learning games based on traditional games of the UAE by using prêté-à-apprendre+ (ready-to-learn) wearable learning platform. This e-Textile-based wearable learning system employs an ubiquitous architecture to form an ad-hoc wireless network between children’s clothes and their environment.

Keywords: Game-based learning, traditional games, e-Textiles

Introduction
With the rapid growth and affluence in the UAE, not unlike the developed economies, children are increasingly tied to their computer screens, mobile phones or television. While such data are not readily available for the UAE, due to the sedentary life-styles involving video games and television, the physical activity in children of the developed economies has significantly dropped and this drop is directly related to an increase in obesity and related medical problems (Nader, 2008). These behaviors have also been found to be positively correlated with high blood pressure in children (Martinez-Gomez, 2009) and to significantly contribute towards increasing psychological distress in children (Hamer, 2009). Another victim of rapid growth in the UAE has been the local traditional outdoor games that are disappearing with the onslaught of computer games and other modern distractions. However, computer gaming has recently emerged as a promising channel for informal learning; another pressing need for a rapidly growing economy like the UAE. Therefore, combining game-based learning with physically inclined traditional games could have the desired effect of not only promoting informal learning in children but also making them engage in more physical activity while also learning about their culture heritage. This paper proposes to do just that. The rest of the paper is organized as follows. A background and discussion of game-based learning and tangible learning is presented next. This is followed by a presentation of design criteria for designing such games. Two learning games derived from traditional U.A.E. children’s games using these criteria are presented next. The paper ends with a conclusion.

Game-based Learning
Game design and game-based learning has been extensively explored (Prensky, 2004; Salen, 2004; Aldrich, 2005; Gibson, 2006). Many recent studies have shown that game-based learning improves student motivation (Papastergiou, 2009), increases their willingness of continued use (Sward, 2008), and helps develop them as independent
learners (Tuzun, 2009). Of particular importance to this research is the recent emergence of pervasive learning games where children engage in physical activity by interacting with their environment while learning (Soute, 2009). For example, Cemelot (Verhaegh, 2006) is a pervasive game that does not include the ‘screen’ as a part of the game by embedding small microcontrollers in children’s play environments. Similarly, the Heart Beat system (Maggielse, 2009) uses a small device measuring children’s heart beat and broadcasting it to others to play an enhanced version of the tag game. Similarly, (Bekker, 2008a) embeds sensors in the physical environment to augment traditional outdoor games. Use of technologically-augmented tangible objects has also been explored in the context of open-ended play (Bekker, 2008b). Tagtiles (Verhaegh, 2007) also represent technology-augmented tiles games. CurBall (Kern, 2006) is a tangible game between senior citizens and children and augments physical space with technology. In SCORPIODROME (Metaxas, 2005) children interact with the physical space by overlaying physical trucks on top of a virtual display or terrain and behavior. In (Soler-Adillon, 2009), interactive pictures are projected from inside a children’s slide to engage children in physical activities. Body Suite project (Zigelbaum, 2006) attempts to combine bodily interfaces for children’s play with musical interfaces allowing for both structured and unstructured play.

**Game Design Methodology**

The primary game design methodology for the research presented here consists of “overlaying” learning on top of existing games. It is important to distinguish this type of enterprise from that of simulation-based learning using games. For example, Flight Simulator (Microsoft Flight Simulator, 2010) game simulates a pilot flying a real airplane. The Wii console’s bowling game (Nintendo Wii Bowling Game, 2010) is another example of a simulation-based learning game. Simulation-based learning typically relies on an isomorphism between the game and a real situation. An isomorphism is a mathematical map that preserves certain properties between two representations. In topology, homeomorphism is a type of isomorphism that preserves topological properties. For example, a 2D square disk and a 2D square are homeomorphic because it is possible to convert one to the other by preserving ‘connectedness.’ Games like Flight Simulator and Wii-based bowling games are based on isomorphic maps that try to preserve the most learning-relevant properties. For example, appropriate responses to changes in flying conditions are preserved in the Flight Simulator game. Nintendo’s Wii game console tries to preserve the relationship between a bowler’s arm and wrist movement and path of the ball. Similarly, role-playing games typically preserve properties like teamwork, strategy and leadership. As opposed to all these games, consider a learning game using the gaming format of ‘who wants to be a millionaire’ to teach concepts in physics. There is clearly no obvious isomorphism because the gaming format is detached from the domain of learning; the game-format is just a shell. As opposed to simulation game-based learning, this is shell game-based learning. Malone’s (Malone, 1987) concepts of exogenous and endogenous fantasies can help distinguish between simulation and shell game-based learning. Shell game-based learning is an exogenous fantasy because the game fantasy is directly driven by learning competence but not vice-versa. In “who wants to be a millionaire,” if a player answers a Physics question correctly, they make progress in the game. On the other hand, a keen familiarity with the rules of the gaming format does not help a player get better at Physics. In other words, in exogenous
fantasies, the relationship between gaming and the domain of learning is unidirectional. Endogenous fantasies, on the other hand, are bi-directional in some sense. For example, while using a Flight Simulator may make one a better pilot, flying a real plan will also have a reverse impact on one’s ability to play the game well. Since the purpose of research presented here is to overlay learning on top of existing physically challenging games, the primary exercise in game-design consists of building good exogenous fantasies. The purpose is NOT to build simulations of existing games (like Wii Bowling) because this would be contrary to the original objectives; the whole point is to make children play the actual physical games.

(Malone, 1987) provide two sets of categories for designing such fantasies. Internal motivation categories include meaningful goals, challenge, curiosity, control, and fantasy while external motivation categories are cooperation, competition and recognition. Prior work in overlaying learning on the tag game will be used to explain these categories. (Zualkernan, 2010) is an example of building an exogenous fantasy on top of a tag game where each child was given a topic to learn and asked to make up three difficult questions to stump their colleagues. Before the tag game starts, each child puts their three questions on a special e-textile-based shirt that wirelessly talks to a main computer. The tag game starts with children in two teams facing each other. The computer randomly lights up one question on one of the shirts. The child whose question is lit up has to run to be caught while children on the other team have to not only catch the child but tag them using the right button (true or false) on the challenger’s shirt indicating the correct answer.

The internal motivation criteria are discussed first. Even though the goals of this tag game are fixed (find questions to stump colleagues), the students are free to establish their own goals by formulating more difficult questions related to the topic. Similarly, the challenge is two-folds; physical to be able to catch the opponent or not being caught and intellectual in the ability to answer colleagues’ questions correctly. Uncertain outcome is introduced into the game because the order of question asking is determined by the computer. Performance feedback is provided immediately after a child hits the true or false button and the self-esteem dimension is addressed by gaining confidence of the students by first lighting up the easier questions as judged by the teacher and by building confidence through the game. Sensory curiosity of children is addressed in this game by providing variability in audio and visual effects. Cognitive curiosity is mostly a function of how the learning content is created in a controlled manner to evoke surprise, for example. This tag-game falls short in this criterion because the teacher has little control over which questions are asked. This game establishes learner’s control by providing them a choice of whom to run after based on perhaps their perception of who they can catch as well as their own ability to answer questions. Finally, the fantasy aspect of motivation is primarily embedded in the emotional or psychological aspect of this being a tag game; there is something intrinsic about children wanting to play tag games.

The external motivation criteria are explained next. Cooperation within a team in this tag game is a key component of the game because team members need to decide which opponent to pursue to maximize their chances of winning. The game clearly has a strong measure of direct competition both in terms of the cognitive as well as at the physical level. Because the game is played in front of a large audience, the game also scores well with respect to the recognition aspect of the interpersonal motivation criterion. In summary, the game-design methodology consists of an explicit recognition that an
exogenous fantasy is being constructed and systematically considers each of the various criterion described about to overlay the learning experience on top of an existing game. Next the methodology as applied to two popular traditional games in the UAE is described.

**Wearable Games for the UAE**

Boys and girls in the UAE have played a variety of traditional games. The games for boys include Al Miqab (playing ball with wooden sticks), Al-Ghomaid (variant of tag), Dezis (variant of hide-and-seek), Al-Moakazi (walking on tip-toes), Al-Tila (marbles), Swaba (top spinning), and Khabz Rakalk (jumping over each other). Games for girls include Al Meryeihana (swings), Umm Al Lal and Al Umm Tehmi (playing mother), Al Mohamah (walking on tip-toes), and Al-Saqla (similar to Jacks). All of these games are played outdoors and most involve strenuous physical activity. In addition, these games are played using simple materials like marbles, pieces of wood or no materials at all. Most of these are social games that involve multiple players. Based on the methodology described earlier, an adaptation to learning of two UAE games is presented. The design and implementations of learning adaptations of the Al-Ghomaid game for boys and the Al-Saqla for girls is presented next. The modified games are termed PAP+ Al-Ghomaid and PAP+ Al-Saqla respectively.

**PAP+ Al-Ghomaid**

Al-Ghomaid is a variant of the tag game. In this game, one child is blindfolded and needs to catch and tag another child before their turn is over. Other children make noises and gestures to tease and confuse the blindfolded child. If another child is caught and tagged, they get their turn at being blindfolded and the game continues.

**Game Design**

As Figure 1(a) shows, in first step of the modified Al-Ghomaid game, the teacher assigns a topic to be learned to a group of children a day or so before the game is played. The children are told that they will be required to answer questions on this topic while playing the game. Figure 1(b) shows that the learning actually takes place when a child studies this material to get ready for the game. Figure 1(c) shows start of the game where one child is blindfolded while other children try to tease him and not be caught. Unlike the original Al-Ghomaid game, as Figure 1(d) shows, each non-blindfolded child wirelessly receives a true/false question on the learning topic they were provided earlier. This question is shown on an LED display (described later) that has been attached to their shirt. Each child receives a unique question which is either automatically chosen or manually sent by a teacher from a laptop computer. The laptop communicates with each shirt using a wireless protocol. Upon receiving a question to answer, each child now has a limited amount of time to tap the blindfolded child with the right answer to the question by tapping them on either a true or false switch on their shirt (described later) without getting caught (Figure 1(d)). The longer a child delays in answering the question, the more points they lose. All children get their respective questions continuously and hence there is competition where each child wants to tap the blindfolded child. Each child gets a different question. Like the original Al-Ghomaid game, if one of these children is caught, it is their turn to be blindfolded and the game continues (Figure 1(e)). The child who has answered the most questions correctly in the shortest amount of time wins.

It is important to point out again that unlike simulation learning games where the learning can take place while playing the game, in this game the learning takes place before the game when the children are getting ready to play.
the game. The game acts as a motivational device for learning. Table I shows how each of the design criteria were considered while designing the game. As Table I shows, all criteria are explicitly addressed except cooperation. However, the platform is flexible enough to easily include the cooperation component. For example, two students can get different parts of the same question in a jigsaw pedagogical fashion and have to cooperate with each other to collectively answer the question.

![Figure 1 - The PAP+ Al-Ghomaid Learning Game](image)

(a)  (b)  (c)  (d)  (e)  (f)
Table I – Applying design criteria to PAP+ Al-Ghomaid

<table>
<thead>
<tr>
<th>Design Criterion</th>
<th>Design Consideration</th>
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<td><strong>Intrinsic Motivation</strong></td>
<td></td>
</tr>
<tr>
<td>Motivating goals</td>
<td>The goal of the game is closely tied to the original game and is inherently motivating because children love to either catch (tag game) or tease someone to be caught.</td>
</tr>
<tr>
<td>Challenge</td>
<td>The game has both a physical challenge of getting close enough and not getting caught and the intellectual challenge of answering questions.</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>The timing and the questions are generated by the teacher and so introduce an element of uncertainty for the child.</td>
</tr>
<tr>
<td>Performance feedback</td>
<td>Immediate feedback is provided to the child by a message on their shirt before the next question is asked.</td>
</tr>
<tr>
<td>Self-confidence</td>
<td>The teacher can vary the difficulty of questions to help students build their confidence.</td>
</tr>
<tr>
<td>Sensory Curiosity</td>
<td>Each student has a well-lit display on their shirt and in addition, when they tap the blindfolded student, a bright red LED lights up.</td>
</tr>
<tr>
<td>Cognitive Curiosity</td>
<td>Since teacher designs the questions to ask, this component can be build-in by the teacher.</td>
</tr>
<tr>
<td>Control</td>
<td>While a child does not have control over which question to get, they do have control on and if they want to tap the blindfolded child.</td>
</tr>
<tr>
<td>Fantasy</td>
<td>The fantasy is based on the Al-Ghamaid game.</td>
</tr>
<tr>
<td><strong>Extrinsic Motivation</strong></td>
<td></td>
</tr>
<tr>
<td>Cooperation</td>
<td>This game does not a specific cooperative component.</td>
</tr>
<tr>
<td>Competition</td>
<td>The children are competing against each other in terms of the number of questions asked as well as how long it takes them to answer each question.</td>
</tr>
<tr>
<td>Recognition</td>
<td>The game is played in front of a large audience and a winner is clearly recognized and appreciated as they tap the blindfolded child.</td>
</tr>
</tbody>
</table>

**Implementation**

e-Textile components from the latest version of prête-à-apprendre (PAP+) toolkit (Zualkerman, 2010) were used to build the hardware for this game as shown in Figure 2.

*Figure 2 – A boy’s shirt for PAP+ Al-Ghomaid learning game*
As Figure 2 shows, one sleeve of the shirt has a bright rolling LED display visible in daylight to show the questions being asked and to provide immediate feedback to each child. Back of the shirt contains the sewn electronics for control and communications. Figure 3 shows the details of the electronics which consist of various PAP+ pads. As Figure 3 shows, an 8-bit RISC-based microcontroller is used to monitor the true and false fabrics switches and an RFID (Radio Frequency Identification Tag) reader. The microcontroller also uses a Zigbee-based wireless unit to communicate with a laptop computer implementing the game logic. This low-power wireless module has an effective outside range of about 100 meters which is sufficient for the game. An RFID reader is used to detect which child is about to hit either the true or the false fabric switch. Although not visible in Figure 2, each shirt also has two small RFID tags sewn at the end of each sleeve to uniquely identify the child wearing the shirt. As Figure 3 shows, the RFID reader is connected to a bright LED to provide immediate feedback to the child that they have been recognized and they should go ahead and hit either the false or the true switch of the shirt being worn by the blindfolded child. The back of the shirt also has the two true and false switches that are hit by the children to indicate their choice of an answer. As Figure 3 shows, these switches are fabricated from fabric-based conductive and dielectric materials and can detect a change in pressure and convey this change to the microcontroller using analog outputs. Finally, as Figure 3 shows, a 1000 mAh battery and an associated power management system is used to power all the devices at 5 volts DC.

Figure 3 - Electronics for control and communication of the PAP+ Al-Ghomaid shirt
Figure 4 shows how the circuits are laid out on the PAP+ Al-Ghomaid shirt. The shirt is based on a modular system where the PAP+ pads described earlier can be taken off for repairs or for washing the shirt. As Figure 4 (a) shows, connections in the shirt use fused conductive and dielectric fabrics for laying down circuits. The grey lines shown in Figure 4 are the conductive material while the white patches represent the dielectric. As Figure 4(b) shows, the various PAP+ pads use conductive stainless-steel snaps to connect to a circuit on the shirt. Figure 4(c) shows the complementary stainless-steel snaps fused to the shirt to connect with the PAP+ component. Finally, as Figure 4(d) shows, a skin can easily be added on top of a PAP+ component using small non-conducting plastic snaps. This capability also provides a layer of protection for the circuits in addition to supporting functionality such as labeling of the true and false fabric switches. Like the shirts, the skin can be easily removed and washed from each of the pads.

The software logic behind PAP+ Al-Ghomaid is based on the ZUL architecture (Zualkernan, 2011) which is a light-weight architecture for building Zigbee-based ubiquitous applications. Figure 5 shows the software architecture of the application running on the laptop used to send questions to the children. As Figure 5 shows, the shirt being worn by each child participates as a node (N1 through Nn) in a Zigbee wireless network through the wireless modules sewn on it (see Figure 3). The module sewn on each shirt is configured as an end-point which monitors various devices on this shirt such as the RFID reader, the true and false switches and the LED display.
When the game starts, a Zigbee Personal Area Network (PAN) is automatically established in a star topology where each child’s shirt is an end-point and is connected to a single coordinator node. As Figure 5 shows, this single coordinator node is physically attached to the laptop computer using the serial (RS232) interface. The ZUL architecture is currently implemented using the Microsoft .NET technologies and provides high-level communication and coordination services using the COM and SYS modules. Inside the application running on the laptop computer, a virtual representation for each child’s shirt is created which communicates with the physical nodes (or shirts) using automatically created proxy-objects. The behavior of each shirt is modeled using a state-machine. This shirt behavior is implemented on the sewn microcontroller on each shirt using the C programming language (see Figure 3). This state-machine is either in defend or attack mode. In the defend mode (the blind-folded child), the state-machine monitors the RFID reader and the true/false switches and conveys a change of state to the host laptop. In the attack mode (non-blindfolded children), the state machine receives and sends text messages from the host computer (i.e., questions and feedback) to the sewn LED display.

Figure 5 - Software architecture of the host for the PAP+ Al-Ghomaid Game

**PAP+ Al-Saqla**

Al-Saqla is typically played by girls and is a variant of the Jacks game which originated in Korea. In the Al-Saqla game, children sit around a pit in the sand with many small stones or similar objects. One stone is considered special. Upon their turn, each child throws up the special stone and tries to pick up as many other stones as possible before catching the special stone on its way down. Each child continues their turn until they either miss catching the special stone or
they have acquired all the stones. The child with most stones at the end of the game wins.

**Game Design**

Figure 6 shows the game-design for the PAP+ Al-Saqla game. As Figure 6(a) shows, before the game, a teacher assigns learning material to children. The children are told that the game will include questions from the material. Children study and/or review the material before the game starts (Figure 6(b)). The game starts with various children sitting or standing in front of their own set of stones. Each child gets a special stone to throw up in addition to a few green stones indicating “true” and a few red stones indicating “false.” Children are explained what the stones mean. Once the game starts, each child gets a question on an LED display on their shirt. Upon reading their question, the child has to throw the special stone up and successfully pick either the green or the red stone depending on what they think the correct answer to the question is.

![Figure 6 – The PAP+ Al-Saqla learning game](image-url)
Table II – Applying design criteria to PAP+ Al-Saqla

<table>
<thead>
<tr>
<th>Design Criterion</th>
<th>Design Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrinsic Motivation</strong></td>
<td></td>
</tr>
<tr>
<td>Motivating goals</td>
<td>The goal of the game is closely tied to the original game and is inherently motivating because children love to toss and catch stones. In addition, elements of another game called Al-Anbar are included in the second stage. In this game, children place cans and try to hit them with stones.</td>
</tr>
<tr>
<td>Challenge</td>
<td>The game has both a physical challenge of manual dexterity of picking up the stones, running and aiming in addition to the intellectual challenge of answering questions.</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>The timing and the questions are generated by the teacher and so introduce an element of uncertainty for the child.</td>
</tr>
<tr>
<td>Performance feedback</td>
<td>Immediate feedback is provided to the child by a bright jewel lighting up on their shirt before the next question is asked.</td>
</tr>
<tr>
<td>Self-confidence</td>
<td>The teacher can vary the difficulty of questions to help students build their confidence.</td>
</tr>
<tr>
<td>Sensory Curiosity</td>
<td>Each student has a well-lit display on their shirt and jewels that light up and in addition, when they throw the stone into the jar, another jewel on the jar lights up.</td>
</tr>
<tr>
<td>Cognitive Curiosity</td>
<td>Since teacher designs the questions to ask, this component can be build-in by the teacher.</td>
</tr>
<tr>
<td>Control</td>
<td>While a child does not have control over which question to get, they do have control over how quickly they chose to respond to the questions.</td>
</tr>
<tr>
<td>Fantasy</td>
<td>The fantasy is based on the Al-Saqla and Al-Anbar games.</td>
</tr>
<tr>
<td><strong>Extrinsic Motivation</strong></td>
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<td>Cooperation</td>
<td>This game does not a specific cooperative component.</td>
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<td>The children are competing against each other in terms of the number of questions asked as well as how long it takes them to answer each question.</td>
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<td>Recognition</td>
<td>The game is played in front of a large audience and a winner is clearly recognized and appreciated as they catch the stones and punt it into the jar.</td>
</tr>
</tbody>
</table>

After picking the answer stone (red or green), they have to run to a line drawn on the ground before a jar and then punt their answer stone into the jar. As soon as the stone lands in the jar, the child receives direct feedback on whether their answer was correct or wrong through two bright jewels lighting up on their shirt. After punting the stone, each child runs back to their position to receive another question and the process continues. The child who answers the most questions successfully in a limited amount of time wins. Table II shows how the design criteria were considered when designing this game. This game is similar to the Al-Ghomaid game in that the cooperation component is not explicitly considered. However, this component can be similarly added at a later stage.

**Implementation**

e-Textile components from the latest version of prêt-à-apprendre+ (PAP+) were used to build the hardware for this game as shown in Figure 7. As Figure 7 shows, the dress has the control and communication pad in the back. In addition, the sleeve has an LED display and two jewels to provide feedback. In addition, a specially constructed jar and one set of stones are also shown. These are described later.
As Figure 7 shows, the LED display has a cloth skin to match the dress. In addition, two LED-enabled crystal jewels have been sown to provide feedback to the child on their answer. Each crystal has an LED behind it that lights up to provide feedback to the child; the larger one blinks if their answer is correct and the smaller one if they did not get the right answer.

Figure 7 - A girl’s dress and the jar for PAP+ Al-Saqla learning game

Figure 8 - The LED display and the LED-enable jewels for the Al-Saqla learning game
Figure 9 shows both sides of the fabric-based design for the jar used in the game. A power unit, a microcontroller, a wireless module and an RFID reader are included as shown. Figure 10 shows how the fabric-based design can be inserted into any jar shaped object. As Figure 9 (a) and (b) shows, a matching cloth skin can easily be incorporated. Figure 9 (c) shows the various “stones” that are constructed by using Paper Mache technique to encapsulate RFID tags. Each of these stones is uniquely identified by the RFID reader as they are punted into the jar and reported to the host laptop computer through the Zigbee wireless interface. The software for this game is also based on the ZUL architecture. However, in this case, in addition to the shirts, the software also includes proxies for “jar” objects that detect the stones being thrown and reports them to the host computer.
Figure 10 - The jar and stones for the PAP+ Al-Saqla game
Conclusion

This paper has presented a first incursion into adding learning games on top of existing traditional games of the UAE with the goal of not only providing more physical activities for children, but to also expose them to their own culture that is being lost. The design and implementation of two such games has been presented. However, this work is in its early stages and obviously requires testing these games in experimental settings to see how young children in the UAE will respond. Pilot studies on similar PAP+ games have shown promise and therefore, it is likely that the UAE children will enjoy playing these games as well. Efforts are underway to design experiments and frameworks for deploying such games in various schools in the UAE and to determine the impact of such games on learning.
References


Medical English m-Learning: Positioning a New Paradigm in e-Education

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Kashan University of Medical Sciences

Abstract

Introduction: It is believed that emerging wireless and mobile networks will provide new applications in mobile learning. Though potential for M-learning is huge, usability research of the technology needs to map the different factors for the diverse open user groups.

Method & Material: The samples were chosen from undergraduates and graduates of the faculty of medicine, Kashan University of Medical sciences, Iran. This study uses Depth Interview as a research instrument to study users' perceptions an acceptance of the potential use of mobile phones in a prospective design for learning Medical English.

Findings: The study conducted with the students and graduates of medicine indicate the differences that exist between and the occupational groups on areas related to awareness, credibility, choice of delivery methods and flexibility in medical English M-learning. Almost all the respondents (93%) across graduates and students were unanimous about the need to learn English through M-Learning. 57% of the students were confident that mobiles can serve as a teaching device while only 33% of the graduates shared that confidence. 80% of the respondents said that they would like to take tests over mobile and 9% went against it. 11% stayed silent.

Conclusion: The survey indicates that there is a unanimous demand to learn English amongst students and graduates of medicine in a new e-education setting called M-learning. Constraints imposed by one’s occupation and available resources expose the limitations of traditional learning and opens up a huge opportunity for m-English learning. Irrespective of differences, potential learners accepted the credibility of M-learning and displayed willingness to be an active user of an M-learning module. Diversity of responses on potential Frequency of usage for SMSs, preferences regarding listening to IVR, speaking to Live Callers, traditional classroom learning, M-learning and testing options will establish at a primary level that the means of ‘engagement’, ‘presence’ and ‘flexibility’ can be significantly different ‘between’ and ‘within’ different occupational categories.

Keywords: M-learning, Students of medicine, Graduates of medicine, Medical English, Short Messaging Service, Interactive Voice Response, E-Learning

Introduction

There is no doubt that mobile technologies have started to make their presence felt in the field of education, as can be seen by the increasing number of publications that have appeared in recent years (e.g., Ally, 2009; Kukulska-Hulme & Traxler, 2005). The range of research into the use of mobile phones for language learning has been diverse. In one study, for example, Kiernan and Aizawa (2004) used mobile phones to have learners exchange e-mails with one another in order to
teach targeted structures, while Taylor and Gitsaki (2003) required their learners to use the browser function of their phones to perform Internet searches, and Levy and Kennedy (2005) sent learners language learning related text notifications through SMS about what they had learnt during class or details of upcoming television programs they wanted the learners to watch. Each of these studies capitalizes on different features of mobile phones (e-mail, web browsers and SMS) and illustrates the broad potential of the phone as a learning tool. Mobile technology is currently a feasible approach to overcoming many of the obstacles in current methods of EFL (English as a Foreign Language) instruction. Standing on the shoulders of the giant, CALL (Computer Assisted Language Learning), mobile assisted language learning (MALL) has the capability of providing EFL learners with the same opportunities for independent and targeted reading practice and immediate corrective feedback as CALL (Asgari Arani, 2010). A paradigm shift has been identified from e-learning to m-learning (Upadhyay, 2006). It is believed that emerging wireless and mobile networks will provide new applications in mobile learning (Upadhyay, 2006).

In Iran where mobile technology is in a rapid growth phase in the semi-urban and rural areas (accounting for the majority of potential English learners), people in general have adopted the wireless technology as a technological tool for their daily need to communicate. However, “widespread acceptance and use of new communication technologies” does not necessarily point to effectiveness or value in the educational context” (Levy & Kennedy, 2005). The adoption of mobiles as a teaching tool will be a function of “its strengths and limitations both as a technology and as a pedagogical tool, and the social and cultural conditions that surround its use” (Levy & Kennedy, 2005). Dias (as cited in Levy & Kennedy, 2005, p.76) opines that while some users might perceive any use of mobiles for education as unwanted intrusion in their private space, other specific groups of users might welcome it. These indicate the need to conduct research on user perceptions about various aspects of a proposed mobile learning module in Iran for open user groups. In this study on user perceptions, ‘Usability’ has been interpreted as the acceptability of the m-learning tool as a reliable, useful, cost effective, and socially compatible platform for learning (Nielsen, 1993). The objective was to elicit data that would help in building the basic grounding blocks for an M-learning system where ‘learning is an engaging experience’ with stress on ‘effectiveness and efficiency’ (Kukluska-Hulme, 2005). It was also to avoid a situation where potential learners reject ‘technologies that are unusable’, drop out of courses and find ‘alternative education and training providers’ (Kukluska-Hulme, 2005). Mobile learning for language learning has reached a stage where it is starting to move out of the classroom and into the real world. Through mobile phones, we have the potential to provide a rich learning environment for our learners, but there are still issues that must be considered before they can reach their full potential. Obviously, there is still the problem of the lack of willingness to try new mobile technologies, but this is something that may slowly become less of an issue as perceptions change (Stockwell, 2008).

**Objectives**

This survey was designed to obtain data from open user groups of mobile users falling in the students and graduates of medicine. The survey was aimed at collecting data on the following areas for a prospective project design in teaching special English to the students and graduates of medicine:
• Awareness and perceived credibility
  an interactivity of learning English
  through mobile phones.
• Willingness to learn English through
  Mobiles
• Choices and opinions about the
  following different m-learning options
  for English SMS & SMS + IVR
  (Interactive Voice Response) for
  listening
• Educational Games

**Methodology**

Depth Interview with a set of pre-designed questions and prod questions was the research instrument and documentation of such interviews was carried out through audio-visual recording without any online editing. The primary pre-survey testing with a sample questionnaire revealed that the subject of M-learning is new for the general population and faulty responses came out of misunderstanding the question. Questionnaire as an instrument was therefore found to be unsuitable for this survey. Depth interviews was chosen for its proven ability of exploring new issues and being a better alternative to focus groups while handling individuals who are uncomfortable to speaking in a group.

Two different groups i.e. Students and Graduates of medicine were chosen. The rationale behind choosing these two groups was that these two groups represent the two broad ends of the occupational spectrum ranging from the former having relatively lower degree of mobility to the latter having relatively higher degree of mobility. Also the first group had experienced a short period of M-Learning research by the researcher (Asgari 2010). However, both had the commonality in terms of a generic ‘need to learn English’.

The survey was conducted with a total sample size of 45 out of which 30 were undergraduate students and 15 were graduates. Out of 30 students, 15 were first year and 15 were second year students of medicine. The sample for undergraduate students were chosen from faculty of medicine, Kashan University of Medical sciences, Iran.

**Discussion**

Almost all the respondents (93%) across Graduates and Students (only 3 kept silent) were unanimous about the need to learn English through M-Learning. However, there was a clear difference in the reasons for that need. While the dominant reason for learning English amongst students was ‘to progress in life’ (40%) or ‘English is used everywhere’ (37%), none of the graduates expressed the reason as ‘progress in life’. For the Graduates medical English was mainly ‘good for practice’ (47%). However, the reason that ‘English is used everywhere’ was a dominant theme for both the groups (42%) reflects the overwhelming presence of English in their life. Another piece of useful information is that while 30% of the students had prior experience of trying to learn English through previous experiment (Asgari 2010) self-help books or other means, only 1 out of the 15 graduates had tried to learn medical English through an individual effort. The dominant reason for not trying to learn medical English with a conscious effort was ‘No time’ for both Students and Graduates.

57% of the students were confident that mobiles can serve as a teaching device while only 33% of the graduates shared that confidence. This probably came from the fact that 37% of the students had prior familiarity to some kind of m-learning (Asgari 2010) while none from the graduates had such experience. Amongst the students, the second year students (73%) were found to be more optimistic about the possibility of M-learning compared to the first year students (40%). This is borne out by the fact that 73% of the second year students had prior experience of M-learning while none from the first year
students had any experience. This also probably influenced their relative differences in opting for m-learning if given the choice, as 87% of the second students were very sure about giving it a try while 64% of the first year students were open about it. However, 100% of the graduates wanted to try it because of their prior experience or lack of knowledge about M-learning.

When respondents were asked to suggest ideas on how medical English can be taught through mobiles (unaided question), 49% suggested SMS and 27% suggested SMS & Live Calls. 22% had no idea to offer. One person suggested only live calls. Within the category of SMS (49%) there were additional ideas of medical Dictionary, special Chatting, Internet Browsers and personal tutors.

When respondents were explained the possibility of an English M-Learning module which involved SMS and Live Calls for Reading, Listening and Speaking respectively, 70% amongst students and 67% amongst Graduates strongly agreed that it would be a better method than just SMS based learning. Though there were no negative responses, the remaining respondents stayed silent which generally bordered to agreement or expressed doubts. The doubts were expressed by 2 respondents through statements like ‘It would cost us more to listen and to speak’ and ‘I think just SMS would be enough and we can do without listening or speaking’. When asked to choose between ‘Listening on IVR’ and ‘Speaking to a Live Caller’, 20% opted for Listening and 60% for Speaking. 18% felt that neither of them is necessary and only reading through SMS is enough for their learning. An interesting aspect about attitude towards educational methodology amongst the students in Iran was revealed when respondents were asked if ‘Learning English through educational games in mobiles is possible.’ A very strong agreement to the idea was expressed by 47% of the respondents. Only 13% were positively inclined to the idea. Notably, 83% of the negatively inclined group was second year students. 40% of the respondents stayed silent and doubtful. Those who opposed the idea made statements like ‘Games are for children...not for adults to learn anything’ or ‘games are for entertainment and not meant for serious learning’. Those who were optimistic about Educational games expressed ideas like ‘learning through games would be interesting and entertaining’.

Across both groups (37%), the most preferred volume of SMSs per day is 4-6 SMS. However, the students preferred a higher number of SMSs than the graduates. The most preferred range for the students was 5-6 or above (63% support) and for the graduates was 3-5 (47% support). When asked about the Irritation point for the volume of SMSs, the most common irritation point for 31% of the respondents was for 7-8 SMS. Preferred time to receive SMSs came in two bands. 43% preferred after 4pm and 26% preferred late evening around 8-9 pm. While the former was mostly the choice for the students the latter was dominated by the choice of the Graduates.

58% of the respondents who responded to the question on ‘how many times in a day they would like to listen to any prerecorded lessons on IVR’ gave a range of 1-3 times. 61% of the respondents who responded to the question on ‘how many times they would speak if given the option of speaking to a live caller’ indicated a range of 1-3 times.

80% of the respondents said that they would like to take tests over mobile and 9% went against it. 11% stayed silent. 50% preferred to take tests ‘once in 7 days’, 36% ‘once in 15 days’ and 14% ‘once in 30 days’. There was however a perceptible difference between students and graduates as only 67% of graduates liked the idea of taking tests as against 87% amongst students.
20% chose to remain silent on this question. 33% said that Mobile learning would work better for them if they wanted to learn English and they won’t miss the classrooms. 47% preferred the classroom training if constraints of time and availability of resources were not there. Responses from individuals who preferred M-learning had ‘Anytime anywhere learning’ as a recurrent theme along with ‘no fear of being ridiculed’, ‘we are quite responsible’ and ‘I would concentrate better’.
Conclusions

According to the questionnaire survey, the learners appreciate convenience, connectivity, portability, immediacy and push aspect, which are the attributes of m-technology. The survey indicates that there is a unanimous demand for learning English amongst ‘students and Graduates of medicine. However, constraints imposed by one’s occupation and available resources expose the limitations of traditional learning and opens up a huge opportunity for m-learning. Irrespective of differences, potential learners accepted the credibility of M-learning and displayed willingness to be an active user of an M-learning module. Issues about learner’s ‘engagement’, ‘presence’ and ‘flexibility’ which have been proven as effective criteria for evaluating mobile learning environments (Danaher, Gururajan & Hafeez-Baig, 2009) have been partially addressed. Owing to the limited time, technical support, number of subjects involved and the narrow focus of the m-learning project, the results have to be interpreted with caution. It should also be emphasized that interactivity was not fully achieved in the learning because of the limitations of SMS technology. Responses from those who preferred classroom learning made statements like ‘Classroom learning is better as the teacher always tells us what to do and will help us if we are stuck somewhere. But in mobile learning the company would send a SMS and if we are unable to understand something then it is up to us to call and find out’ or ‘reading alone will be boring’. However, only one individual believed that ‘m-learning cannot replace classroom learning’.

Our ongoing research would strive to validate the above findings with a larger and more representative sample across the university. Further research also needs to be done with other occupational categories of open user groups. Responses on attitudes towards educational games create the scope for exploring the prima facie reluctance of Iran adult learners towards accepting educational games as a valid educational tool. The intricacies of designing such games have been earlier displayed by the primary research on designing learning games for children (Kam et al.2008).
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Quality Assurance and OERs in Online Courseware Development and Delivery

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Abstract
Open Educational Resources (OERs) are gaining momentum in education and throughout diverse academic communities. However, the quality element is still a concern for many. This article discusses the quality element with respect to the courseware design, development and delivery when OERs are used. A case study of a course is presented and it is argued that the quality element with respect to OERs encompasses much more than the mere quality assurance of the content that is being available. The issue of quality needs to be addressed in the broader quality assurance framework for courseware development.

Introduction
The issue of quality assurance (QA) has increasingly become a priority for Higher Education institutions. As universities compete to attract more students, but also to attract financing through various projects, quality represents one of the main criteria for ensuring a significant share of the educational market (Abdous 2009, p. 281). Guaranteeing quality, however, is not always an easy process, first and foremost because the very concept of "quality" is disputed and many different, contextual definitions are used (Mihai 2009).

The main barrier to such an innovative way of using OERs to reconceptualise the educational process in traditional universities are the quality assurance procedures that need to be 'strictly' followed. In a traditional lecture, quality is believed to be maintained if the lecturer spends 3 hours in the classroom irrespective of what he does or not. This is proved by the log book in which he signs. In another context, quality is maintained if students' results follow the normal distribution and if academic/administrative records related to the course are duly kept. Furthermore, quality is considered maintained if feedback forms are given, at the end of the semester, to students who fill in most of the time in a subjective way. This perspective of viewing quality poses a problem for bringing innovation and creativity in the learning process. Quality is a non-referential concept and quality assurance techniques that are applicable in behaviorist learning environments are not compatible in socio-constructivist ones. The quality framework that can be applied depends on the learning design approach to be adopted. Quality assurance needs to be an ongoing and iterative activity and student feedback on their own learning (problems encountered, things that were easily understood, communication problems and other related issues) contribute towards making them better learners and develop the required competencies.

This paper looks at the issue of quality assurance when OERs are used for courseware development purposes. It is clear that the main issue surrounding OERs use relates to the phase when the content is being developed while the other phases will normally fall into the existing quality assurance mechanisms of institutions. However, this perspective of viewing quality
depends on the granularity of the OER being used.

An Overview of OERs

Open educational resources are defined by the Wikipedia community as being basically content, instructional approaches, activities and other resources, available for free and that are believed to be useful in educational contexts. The idea behind the concept is to promote access to education to a wider audience, especially those from deprived regions of the world, where the open resources can be freely reused, improved and repurposed to fit in different contexts. The term open educational resource was first defined as “the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes” (Johnstone, 2005). The definition of OER now most often used is: “open educational resources are digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research”.

Open educational resources are therefore basically learning objects which are open and which may be governed by alternate licensing standards such as Creative Commons. However, some definitions of open educational resources go beyond the classic definitions learning objects. It can basically be any resource that is available in an open access manner and that can be used in an educational context. It can be anything from a blog post to a complete website which has no relation to educational contexts, but which can indeed be repurposed to fit any context. This is precisely where the issues of quality come into light as the authenticity and integrity of such materials can hardly be verified.

While materials can be produced, published, shared and accessed by anyone at a low cost, well defined OER projects within an educational context does cost a lot in terms of funding and effort needed to build, implement and sustain those initiatives. For instance, the OpenLearn Project of the Open University in the UK had a budget of almost USD 5 million a year for the first two years (OECD, 2007). On the other hand, from the same source, it is mentioned that the OCW project of the University of the Western Cape in South Africa runs its operation with three staff and approximately USD 44000 a year. While it is important to point out that real costs can be met with resources other than money, most initiatives need to raise some money some of the time (OECD, 2007).

OERs are also available in a variety of formats and in a variety of repositories using different types of standards. Resources can be available in portable document formats (PDF), compressed formats (ZIP, RAR), hypertext and/or animation/movie formats. This variety adds both to the flexibility as well as the complexity.

There are also a number of barriers that have been reported with respect to the creation, use and adoption of OERS such as lack of support from management level, lack of staff reward system, lack of skills and lack of time from the educator’s community. This definitely impacts on the sustainability of OER initiatives and in the course of time leads to a decrease in the perceived quality levels of such content.

Quality in OERs: From Creation to Consumption and Dissemination

Open Educational Resources provide instructors with an innovative way to conceptualise courses. The philosophy behind it is that courseware development becomes a distributed and a split 3-phased approach. This means that the development of content can be done by anyone, anywhere and at any point in time, thus becoming the first phase of the process. The instructor involved in the use
of OERs has practically no control over this phase but has access to a range of tools than can give him access to content having been developed in that phase. A simple example would be to use a search engine to look for related content or to access OER repositories. The other phase would be to build-up the course from the content available manually or through the help of courseware building tools. The third phase would be the delivery and dissemination of the course content in a face-to-face classroom or via an e-learning platform. The instructor might have control on both phase 2 and 3 or on only one of them. This approach being an innovative way in itself, is set however to be a “disruptive process” in well established traditional educational systems especially with respect to the quality issue.

Issues of quality in educational processes normally arise in terms of

- The content – its selection, aggregation and presentation
- The pedagogical approach used
- The delivery of the course
- Students’ satisfaction, performance and acquired competencies

The most obvious issue of quality in OER-based courseware development process relates only to the content development phase on which the author has no particular control. This is where most of the concerns related to quality assurance lies. Traditionally speaking, reliable sources of academic information were only books, and published research (journal articles and conference papers) as well as from the academic’s philosophical perception of things (academic freedom). With the democratisation of access to content and the removal of publishing constraints via the web, reliability of information presented in content has been of great concerns to educational authorities. In this context we wish to highlight a very simple fact that out of ten consecutive searches that were tried on different topics on Wikipedia returned a number of resources which warned on the top about the reliability of the content (information) being presented to the user. Furthermore, most searches done on Google for particular information would most likely return Wikipedia as one of the top 5 sources. The fact that OERs came into the limelight more or less with the emergence of Web 2.0 era (contrary to the Learning Objects Concept) contributed to the significance of the concerns regarding QA issues. Therefore academics and instructors using OERs need to have a well-established set of guidelines that would provide a framework for the search and use of freely available content from the Web. De-facto trusted sites like the OpenLearn platform, Connexions and Curriki, just to name a few would greatly help but it is in fact very difficult for an institution to control such activities of their staff. One possibility would be for OERs to form an integral part of the institution’s courseware development policies rather than being used on piece-meal basis by individual academics.

It is important to note that peer-reviewing has over the years proved useful in research-related quality assurance systems. With the concept of collaborative editing through wiki technologies, the concept of peer-reviewing has been very much the motor for those promoting an approach based of OER development through communities of practice. However, the issue that remains contradictory is the impersonation issue. While there are ways to counter this, sites like Wikipedia and others will definitely encounter difficulties to enforce identity checks for its users. One recent article on the web also mentioned the declining number of people who were involved in ‘watching’ of pages and their content on Wikipedia.

One possibility to counter the above problem is therefore to completely rethink (re-engineer) the pedagogical approaches used when designing courses using OERs. When
courses are fully content-oriented, it is obvious that quality assurance processes will focus mainly on the content being used and presented to the users. However, if the content is not the central focus, but an element in a broader pedagogical scenario, then the whole quality assurance issue takes a different perspective. The concept of project/activity-based learning that focuses on the development of a set of skills and competencies by the student through socio-constructivist models can be useful. Quality assurance will in this case be a process that ensures the learning path of the learner will lead to the desired outcomes. In doing so, using a variety of available contents on the web which are labeled as OER is not a problem as the learners will develop higher order cognitive skills where they can synthesize, argue and discuss on the contents rather than adopting them to be factual information. However, again as was mentioned earlier, this different perspective can be disruptive to the traditional organizational processes of QA.

**Case Study of OER-Based Courseware and the Issue of Quality**

In this section we shall describe a course on Educational Technologies developed at the University of Mauritius that incorporated OERs. We will look at how the course fit in the existing quality assurance frameworks of the university and where some adaptations were needed. To mount a course from OERs, there are two possible practices namely the bottom up approach or the top down system. In the bottom up approach the course developer has a broad idea of what he or she wants to deliver in a course and what outcomes he or she wants the learners to achieve. In this approach, the course developer will mainly look at what is available and then fine-tune his syllabus, learning outcomes and the design of the learning activities and assessment instruments accordingly. The top down system on the other hand follows a more classic approach of course design where the syllabus and outcomes are duly approved by a course committee and then the course designer has to meet the specific elements that were approved beforehand. When using OERs the bottom up approach is more appropriate as it allows for flexibility in the process.

This is a foundation course targeted at students who are enrolled on bachelor programmes of the University but who have an interest in education. They might be aspiring teachers, educators or looking for a future career in an educational context. The course is not compulsory and is offered as a general education module (GEM). The course has no written exams and the evaluation is done through a set of assignments consisting of a mini project, forum participation and completion of self-learning activities. The course was developed from a set of learning units selected from the OpenLearn platform of the Open University of the UK. The course was developed using the bottom up approach as described in the paragraph above. The course was a 6-credit module spread over two semesters. This is equivalent to 90 hours of classroom teaching. The main aim of the course was to introduce learners to the basic concepts of pedagogy and the use of ICT/digital media in teaching and learning.

With this requirement in hand, the course developer tries to look for suitable content from OER repositories. Given that the University of Mauritius was during that period involved in the SIDECAP project in partnership with the Open University of the UK, the OpenLearn platform was chosen for this experiment with Open Education Resources. With respect to the four elements that constitute a ‘quality framework’ as per our conception of education, we try to analyse the process related to the design, development and delivery of the course on Educational Technologies in the next paragraph.
The Content –Its Selection, Aggregation and Presentation

Course development is not only about writing of content. The content is just one of the elements that constitute a course, yet a very important one. Starting with the course outline, course aims and goals as the benchmark, an in-depth analysis of related content on the OpenLearn platform is done by the course developers. Another element that is determinant in the choice of already available content is the number of learning hours of the units being selected.

The quality of content is based on a mutual trust (between the academic community) given that OpenLearn content already undergo prior phases of review (through LabSpace) before being posted online. These reviews ensure integrity, accuracy and relevance of the content and its sources. However, when independent OpenLearn units are being selected to form part of a course, there is a need to make sure if the content of the different units are compatible and homogenous. This can be a quality issue even if the individual chunks of content are high quality since it does not necessarily guarantee the final product will be of the same standard unless compatibility and homogeneity of content is ensured.

The Pedagogical Approach Used

In a course, the content is no longer the central element. Even if a course is built from non-OER material, learners will still look for further content in libraries or online through content repositories or simple web search. The pedagogical approach used to ensure the learning outcomes are achieved is also important in determining the quality of the course. Therefore OERs can unjustly suffer from the quality debate given that OERs (in the form of content) do not necessarily contain an underlying recommended pedagogical approach. Therefore in judging the quality of an overall course, the pedagogical approach to be used depends on the type of content and vice-versa.

In the Educational Technologies course, there is no written assessment and learners are assessed purely through continuous methods such as online participation in discussion forums, completion of learning activities and a final practical mini-project where they need to develop a simple educational website. In this case, it is therefore important to choose content that will allow the learners to carry out the practical activities and to achieve the projected learning outcomes.

Course Delivery

Quality of a course is also intrinsically linked to the way it is delivered and the type and efficiency of support that learners receive. When we talk of the use of Open Educational Resources reference is usually made to the design and delivery of online courses rather than in the traditional face-to-face scenarios. Online courses need to have a well-structured course delivery plan as well as an operational framework for learner support. Without this framework, any online course irrespective of whether OERs are used or not is bound to fail and this definitely impacts on the perceived quality of the course.

The Educational Technologies online course receives an average enrolment of 150-200 students yearly. The learners have access to a number of different online support forums, regular Skype chats and a tutor is allocated for each batch of 50 learners. When using OERs it is also important that the tutors go through the course in detail prior to the delivery so as to master the different aspects of the course. Students also have access to a set of online interactive tutorials that have been developed as supplementary support materials to assist them in the learning process.

Students’ Satisfaction, Performance and Acquired Competencies
Another important element that adds credibility to the quality assurance process is the feedback obtained from the learners in terms of their satisfaction, their own perception of the quality of their learning experience, their performances in assessment activities as well as the competencies and skills acquired with respect to the targets that were initially set. The element of student feedback throughout the course in a formative way provides better insight for course developers and tutors to know what they have got right and wrong and this gives them the opportunity to mend some issues during the course of delivery itself. Student satisfaction is also an element to be taken into account when judging the quality of a course. Student satisfaction can however be seen as a complex issue that can often be guided by subjective appraisal by learners. In the Educational Technologies course student feedback, satisfaction, their performance and the competencies they demonstrated were taken as a holistic unit in order to get an objective feedback on the perceived quality on the course outcomes. Throughout the course, students participate on forums, regularly enter journal reflections and carry out self-assessment as well as tutor marked activities. At the end of the course, they are asked to provide feedback in terms of answering open-ended questions rather than filling standard feedback sheets.
Conclusion

The issue of quality has been constantly raised in debates surrounding the use of OERs in education. However, it is clear that quality needs to be seen in a holistic way and needs not only focus on the content but on the learning environment as one entity that consists of the learning content, the pedagogical approaches, delivery and support mechanisms and students achievements and perception of the learning experience. We show in this article using a case study of a course that has been mounted using OERs that each of these factors discussed are interdependent and intrinsic to the preservation of the overall quality of a course.
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Peer Preview and Review in Teaching of Rhetoric & e-Learning

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Abstract
The paper will discuss using structured monitoring and e-supported methods to assure speedy improvement in the quality of writing skills. Preliminary work for peer preview is completed electronically and a series of instructor-tailored prompt questions help in evaluation process. Modified and adapted evaluation rubrics as well as electronic feedback allow for broader and more extensive response to drafts, hence improved quality of guidance. Grading is completed electronically: e-rubrics used for clarity and transparency including links to relevant online resources. Electronic platform such as Blackboard encourage students to self-improve essential rhetoric skills through instant access to instructor generated templates.

Keywords: Preview, review, rubric, rhetoric, education

Challenges
In every walk of life, we are daily faced with ever diminishing availability of time and simultaneously with greater expectations to perform and deliver results. In academia this is just as apparent, since “education is, by its very nature, a dynamic and evolving process and is susceptible to adaptation to the demands of the environment and to the new challenges” (Gillani, 2003). Ever expanding numbers of students per class, broader curricula, and higher standards are the realities of teaching in the 21st century, where “the goals of education . . . are drastically different from educational standards that were set a century ago” (Gillani, 2003). Students are expected to cram in more work and churn out more papers which means that instructors need to give more comprehensive feedback in a shorter amount of time. This need not be tedious though. When placed within “the context of group or community,” learning is a social act, which constitutes a natural part of the community’s life. Through participation, knowledge is naturally acquired and “engagement is inseparable from empowerment” (Allan, 2003).

Teaching of academic writing as a process, in particular to ESOL/EAL students, with the help of e-technology can help to streamline and optimize the instructor output vs. the effectiveness of the learning that needs to take place on the part of these students. This need for reform in traditional teaching methods stems back at least a decade, coinciding with the advent of e-learning, where educational bodies had recognized the “opportunity [for students] to take a new active role in their own education, to move from their traditional passive role as receptacles for information supplied by professors” (Senn Breivik, 1998). By involving students in their own learning, through peer-preview and review, collaborative knowledge building takes place that involves formal assessment. Huebner (2009) states that when “used effectively, formative assessment provides information that helps the teacher adjust instruction to improve learning.” Although some may be critical of this format of teaching/learning, as is Wilson (2009) who claims that there is no learning purpose in appropriating grade to students’ work, when applied responsibly and with transparency as the ultimate intention.
and goal in mind, grades are indeed a means of rewarding the students’ hard work rather than a tool of condemnation. Collaborative knowledge building depends on “creating a climate that maximizes student accomplishment . . . focus[ing] on student learning instead of on assigning grades. This requires students to be involved as partners in the assessment of learning and to use assessment results to change their own learning tactics” (Fluckiger, Vigil, Pasco & Danielson, April 2009).

This process becomes particularly important when dealing with students who may enter the English language classroom, uncertain of their own abilities, because English is not their first language. A typical Academic Writing class which I find myself teaching during any given semester might consist of a dynamic variety of students, who come from a number of non English speaking backgrounds. In one class I might be dealing with students whose native tongue is Arabic, Farsi, Hindi, Urdu or even German. This mix holds a potential for very exciting learning if handled effectively, but it also brings with it a number of challenges. Since, for all these students, English is not their native tongue, despite their TOEFL scores confirming their proficiency therein, there are certain subtleties that enter the classroom with these students that no test can really expose beforehand. Because language is not a stable entity, and is subject to external elements such as context in which it is both learned and used, it is logical to conclude that the users of English as second language, imbue their ‘version’ of it with their unique context of acquisition and use. Ruqaiya Hassan (2009) believes that there are consequences to seeing “language [as] invisible, [based on] the fact that the sounds and meanings that we produce appear subsidiary, simply ‘reflecting’ reality”. This becomes very apparent in an ESOL/EAL setting. Students bring with them a very specific understanding of concepts which they often visibly struggle to express in English, as their L2 is an inadequate means of fully and explicitly conveying what they mean. Furthermore, semantic variation in what students perceive to be the meaning of a term, as comprehended and internalized, during the learning process, is often at odds with the plethora of shades of meaning that a single word can hold, depending on the context in which it is used. As already explained, a diversity of student backgrounds will bring a great variety of meanings and understandings, as Hassan (2009) further explains, “meanings made by any language, including English, are not universal, not impartial, . . . . these meanings are saturated with the patterns of our living of life”. With this understanding it is therefore of utmost importance to integrate this criterion into the classroom practices, and to pre-empt the host of interpretations of meanings that would be ‘clear’ to first language English speakers. The planning may need to include readiness to explain concepts and theories in a variety of ways so that maximum understanding is achieved by students. E-learning elements can be very effective in such processes. Availability of e-learning tools can help us overcome the variance in understandings, by catering additional resources for students to refer to outside of class context as well as opportunities to clearly address such issues within class situations. Aiming to create a classroom in which collaboration is encouraged and which promotes cross-cultural adaptation can be very beneficial, in that not only do the students learn from each other’s varied understandings but through instructor moderation, effective learning occurs as a result of “change [which] is the consequence of stress and adaptation in a new cultural environment” (Brabant, Watson & Gallois, 2009). This is not to say that students ought to be stressed, but a degree of pressure, if handled responsibly, can be a motivating factor since “as new learning occurs,
deculturation from the old culture also occurs” and through this process understanding is standardized and enhanced (Brabant, Watson & Gallois, 2009).

**Rhetoric Teacher**

In order for this partnership to happen, the traditional methods of delivering to the students need to be re-thought. Although many teachers still work this way, this however no longer caters effectively enough to the modern student who needs to be actively involved in his/her own learning process in the 21st century classroom (Chun, 2010). In fact “the past decade has seen a shift in thinking about teaching and learning from transmission-oriented pedagogy to one that is more open and involves students as active participants in the construction of knowledge and meaning” (Allan, 2003). This is an excellent opportunity for a collaborative knowledge building. Furthermore, feedback from instructor is essential for the student to understand and work through his/her mistakes. Unlike in the sciences or many other subjects in humanities, our students do not have the option of going back to the text book and looking up where they have gone wrong with their assignment. The only means of comprehending their weaknesses is through what the instructor shares with them about their work. In the past, this used to often be overlooked. An instructor bogged down by dozens of essays, would rarely give feedback that is extensive or constructive enough for the students to benefit from. What I can remember from, not so long ago, is getting my papers back with a few illegible scribbles on it which supposedly justified the grade at the bottom of my hard work. The effect of the traditional format of feedback, however, is double lack of effectiveness. This is because, on the one hand students are no wiser from such rudimentary feedback on how to improve their work, and they plague us, the teachers, for further explanations of where they had gone wrong. We have thus wasted time on two fronts: our time in giving that basic feedback, since they are at our door again demanding time and attention, and theirs because they have to come seek extra clarification. What is important to remember about the process of teaching composition is that each assignment builds on the previous one. Unlike other subjects where materials covered in one chapter might be self sufficient and the chapter constituting a complete unit of meaning, this is rarely the case with my field. Therefore, not giving students effective feedback is equal to cheating them out of their opportunity to learn and the opportunity is at our fingertips.

**Briefing**

From the first step in assigning a task I use technology to ensure that maximum understanding occurs, placing the briefing on Blackboard and using the projector to focus the students’ attention. The ‘web layout’ function in MS Word, allows me to enlarge the document to a desired size so that everyone can focus on the important bits. Students, if given essay prompts in hard format, as handouts-(even if the instructor goes through the prompt word by word), do not focus on what is being talked about in the class. Giving students something to look at that they can hold in their hands is nothing but an invitation to have them stop focusing on what the instructor is saying. First of all, they do not need to look at the teacher anymore, so eye contact is diminished. Students then start reading what is in front of them, so the audible connection becomes broken. At this stage we have lost them. It gets worse. In a manner of minutes they are completely unaware of what is going on in the class, as they are now overwhelmed by the fear of the incomprehensible piece of paper that is lying in front of their eyes. We may as well stop speaking at this stage, because whatever we are saying rings like a dull echo and an
occasional pair of eyes, gutsy enough to look at us, has nothing but fear in them. The ability to comprehend and effectively start thinking about the task ahead has long left the students’ otherwise very capable selves.

**What did not use to work?**

The reason I have begun to integrate the peer preview/review and electronic grading to my class content stems directly from the ineffectiveness of traditional approaches. First of all, peer review is generally conducted on the swap-your-paper basis and talk about your work with one another, without any specific guidelines from the instructor. The majority of students are unable to do this effectively because they have no idea of what is expected of them and they are too afraid to say negative things about someone else’s work. Tailor made prompts therefore help students scrutinize and comment on each other’s work effectively as well as instill the knowledge related to the process of assessment. Students further are able to isolate differences in each other’s work and thus dialogue about these ensues. Where students are unable to resolve the issue of difference in content and/or approach in their work, the instructor is readily available to assist. Many questions that arise from the individual reviewers are applicable to all students and thus I am able to highlight the issues picked up by individual students for the benefit of the rest of the class. As an instructor, it is impossible to predict all likely outcomes of a first draft. Peer preview helps me cater better to the needs of the class. It effectively supports the formative assessment strategy I use during the semester, using a number of interim assessed tasks to ultimately award a grade at the end of the semester (Huebner, November 2009).

**Purpose of Peer Preview & Review**

There is a great opportunity in this approach to enable students to understand more than just superficially, what is asked of them, as “effective formative feedback comes from the instructor as well as from the self and/or peer assessment and is based in clear criteria”, state Fluckiger, Vigil, Pasco & Danielson (April 2009). Through instructor, self, and peer assessment, “learning becomes a negotiated process that involves dialogue between learners and tutors” (Allan, 2003). Students progressively begin to understand the instructor’s methodology and thinking, as the preview prompts introduce them to very particular and detailed inquiry that will be made into their work when eventually it is submitted for grading. This is designed to “help students adjust their own learning tactics, and to develop a class climate focused more on learning than on grading” (Fluckiger, Vigil, Pasco & Danielson, April 2009). What we also have a chance to enhance during these sessions is the students’ technical knowledge of the technology they are using. I frequently help students with formatting issues, which we presume students come equipped with, but in reality, most of them lack. They may have been playing with computers for a long time, but what we are asking them to produce with the help of the pc’s is something foreign to them. Since a portion of the grade is appropriated to the formatting and presentation of the paper, this aspect is important and I believe in helping students to learn this as well. It may seem obvious to us how to change font, determine margin size, create headers and footers, but students often are at sea about these and unfortunately lose valuable points for not complying with the requirements. Another purpose of peer preview is to familiarize students with the concept of a grading rubric and what it consists of. Doing this in a collaborative setting stimulates learning, as “learners are capable of performing at higher intellectual levels when they are asked to work in group situations than when they work individually” (Vygotsky qtd. in Allan, 2003).
Encouraging students to work with adapted rubrics, during the preview process, means knowledge building, in that students learn the specific criteria that are applied in the grading process of their complete papers.

**What does work?**

Preliminary work for peer preview is completed electronically and a series of instructor-tailored prompt questions help in the evaluation process. Students are asked to generate typed first drafts of their work and have them available in class. Many students tend to bring their computers with them to class for such sessions, so that they are able to immediately make changes to their work, since the information is still fresh in their minds. When it comes to issues of rephrasing this is particularly helpful as I am able to help them on the spot, rather than try to scribble over their work, which may later not be easily comprehensible.

**Peer Preview**

These can be either conducted as a series of prompt questions where students evaluate each other’s work, whilst following a carefully instructor-tailored set of criteria, or at a later stage, and depending on the time constraints and student needs, a modified and adapted rubric which will be used in the actual evaluation by instructor. This activity provides an opportunity for students to compare their own efforts to those of their peers. Through differences which they isolate, students ask pertinent questions which can help them better develop their writing. The particular issues which students often face with Academic Writing are mostly related to lack of coherence of sentences, where much rephrasing for clarity of writing is required, as well as lack of ability to express their thoughts in language that is deemed sufficiently ‘formal’ for the purpose. These skills which are instinctive to first language speakers can be a real obstacle in an ESOL/EAL classroom. Uriel Weinreich’s concepts of language known as sociolinguistic or pragmatic transfer where “the use of rules of speaking from one’s own native speech community when interacting with members of the host speech community or simply when speaking or writing in a second” (Wolfson, 1989) can also play havoc with the students’ writing and speaking whereby expressions intrinsic to their native tongue are unconsciously integrated into writing produced in the second language and impede its effectiveness.

**Feedback**

Providing feedback that is directly related to the previews that students were involved in during the process of constructing their essays ensures “effective formative feedback” that is “specific, simple, descriptive, and focused on the task” (Fluckiger, Vigil, Pasco & Danielson, 2009). I provide very detailed and specific feedback to students. This is mostly done electronically, to facilitate ease of application of the supplied guidelines to improving the work-in-progress. Work is provided both with margin notes and e-rubrics to ensure maximum understanding and thus ensure optimal learning.

**Technology in Feedback**

We live in an e-age where access to electronic resources, especially at the university level, is ever more available and platforms for learning become more effective on a daily basis. We have the ability to provide efficient and effective feedback through these means, since “the personal computer acts as a portal to the connected world [and] e-[l]earning has the potential to offer, at any time and place, richer resources than most traditional methods of delivering learning and teaching” (Holmes & Gardner, 2006). Electronic feedback is the answer, as it allows for broader and more extensive response to drafts, and therefore improved quality of guidance. New versions
of MS Word allow us to give feedback in the margins of the paper, related to specific parts/words/areas of the work. This is a very efficient method in that it eliminates lack of clarity through illegibility of writing. What I also find is that I readily give far more extensive feedback using e-technology, as I am much better at typing than I am at writing by hand. Another aid that can be utilized in this process is the use of Clipboard, which is a tool available in MS Word. The instructor has the option to build a bank of specific comments with the help of the Clipboard. Rather than inventing and re-typing ever new responses to each student, we can simply paste in item specific remarks. With each stage of the writing process, there are common areas of weakness throughout most of the papers, errors which call for repetition of mostly the same response. Using clipboard speeds up the process of giving feedback, without jeopardizing the quality thereof.

Final Drafts as well as Work in Progress in Longer Essays are processed in e-Format for Clarity and Transparency with the use of e-Rubrics Rubrics.

Grading is Completed Electronically

I do not read hard copies of papers any more. Review: The comment function in MS word is an ideal tool to provide efficient, extensive and clear feedback to students. Traditional feedback on printed copies of students’ papers is tedious and hand written comments are seldom effective, since we do not give enough feedback and handwritings can be a tough challenge to students who try to de-cipher them, especially when they are not familiar with certain expressions in English. Providing electronic feedback in the margins is clear and one need not be limited in the amount of information disseminated in this forma. The program spaces and clearly displays any amount of written comments, no matter how little or how much there is of it. I often find that students need to follow up on a point that they have made or missed in their essay and having the internet at my fingertips when grading, since I am sitting at my computer anyway, enables me to provide links to relevant resources enabling students to instantly access the additional information and thus become further submerged in the e-learning process as part of their review process. Since MS Word recognizes internet addresses, it instantly creates hyperlinks and students need only click on the URL provided by me, to be immediately directed from the Word document to the relevant resource on the internet. This is particularly beneficial where I read actual first drafts of more heavily weighted papers, later on in the semester, and students need to consult external information to enhance their writing. I furthermore use e- rubrics for clarity and transparency including links to relevant online resources. Rubrics are directly related to the preview points or rubrics that were used in the preview sessions. Although language may seem a little more sophisticated than the simplified one of the preview sessions, students are made aware of the correlation. Points are awarded per category, out of an available score and are related to the proficiency demonstrated by the student in each relevant aspect of the paper assessed. Original rubrics are created in MS Excel, to facilitate ease of determining the grade, using a simple add formula. This has an additional benefit of preventing any miscalculations in final grade, which can be annoying to both teacher and student. Once I have determined the final grade, I copy/paste the rubric into the student’s paper. Drafts are sent back to students in e-format, through the Blackboard platform.

Peer Review

During the grading process, I inevitably come across common mistakes/faults/flaws in the
assignments. Thus, I learn what still needs to be further addressed in class and cater a review session based on these findings. In fact “it [would be] an empty exercise to assess student learning without providing a means to adjust teaching in response to deficiencies revealed through the information gleaned from assessment” (Chun, 2010). To facilitate further learning at this stage, I source a common sample of parts of random student papers which contain the most common mistakes. These are then processed into a working class session in which students are instructed on how to improve the weak points and work with actual extracts from their essays to instantly apply this knowledge. We work through the problem areas collaboratively. I use some paragraphs to allow students to recognize the flaw and determine the best way to fix it. First, using Power Point, I show several paragraphs and how they are more effective when re-worked. Students are then given an opportunity to work through several more paragraphs that they are given as hard copies. This technique helps students to immediately apply the knowledge gained during my explanation. Furthermore, this is an opportunity for students to be reassured that their mistakes are shared by others and thus to overcome possible feelings of inequality which differences in language proficiency often can precipitate in second language English speakers (Blommaert, 2010). Having access to electronic, rather than hard copies of the work helps me facilitate this stage of the learning process, which would otherwise not be possible.

Only once all this has been completed do I send the drafts back to students. The reason for this is that students are only then finally ready to face their grade. If I were to send the essays before the review session, students would not attend to the class and the time spent on going over problem areas would have been wasted. When in the dark about their grade, students are keen to learn as much as possible about their potential mistakes to not repeat them in subsequent tasks, which they know very well, are a continuation of the learning process and will build on all knowledge gained from the previous assignment.

Further benefit of not disclosing the grades before the review session, is that students face their work with fresh understanding of the comments that were made by me in their essays, and this prevents them from contesting the issue of how much they ‘think’ they should have scored.

**Extra Application of Technology to Enhance Learning**

Other than the features of MS Word, there are electronic platforms such as Blackboard, which encourage students to self-improve essential rhetoric skills through instant access to instructor generated templates. These may be made available in the form of Power Point presentations and samples of previous student work, through which new students are better able to comprehend the specific assignment criteria and expectations. There are also additional resources that students can avail such as exercises, links to web pages, rubrics, or extra notes. The onus is on students to help themselves. They readily access these resources and frequently ask for additional help through this platform. Because all this is available electronically, students who are technology savvy (which accounts for most of the students on university campuses today), almost instinctively feel empowered by the use of these resources, and want to learn more. “Specifically focusing on the context of us teaching here in the Middle East, all these additional tools can help [us] address problems [stemming from] diversity in the learner population”, that Holmes and Gardner (2006) recognize as a significant issue. The ability of students to access additional resources helps teachers to better adapt
themselves to varied learning styles, cultural and social backgrounds, as well as language proficiency differences that may be affecting the students’ learning. Being able to access additional resources helps those students who struggle in an environment where they are communicating with people who speak English as their second or third language. While this is especially common in the gulf region, it is exceptionally prevalent at AUS, where students come from over seventy nationalities and speak varied languages. Availability of discussion board further encourages students to interact, during and after the writing process of their assignments. Sometimes students prefer to discuss issues regarding their writing tasks in a more informal setting than an instructor’s office or the classroom. Talking to one another, and comparing each other’s work and problem-solving using electronic discussion board can be an effective additional platform for self-improvement.

**Allocation of Grade**

Modified and adapted evaluation rubrics as well as electronic feedback allow for broader and more extensive response to drafts, hence improved quality of guidance. Although some students might initially find rubrics frustrating and ineffective, if designed well and taught to students prior to evaluating of the task, as I have already discussed, are very effective (Wilson, 2009, p. 61). Other forms of feedback, such as the suggested by Maja Wilson personal response essay, just cannot be useful, considering the time constraints that both teachers and students face. We simply do not have the time to provide individually written student specific feedback of this sort, nor do the students have the time or enthusiasm to read it. Rubrics aim at singling out the essential elements in the students’ work and through clear allocation of points to each aspect of the essay give constructive and objective feedback. And when simplified and provided in electronic format, and used to re-visit areas of weakness the entire experience of teaching and learning becomes a collaborative effort that is more rewarding to both teachers and students than traditional methods used to be in the past.
Conclusion

E-learning has now become an inevitable (if not essential) part of the learning process, and I believe that it is of particular importance in the ESOL/EAL context. It might not entirely replace the traditional classroom learning methods, but when used in conjunction with effective elements of the traditional approach and applied in a collaborative learning culture, where second language English speakers are given opportunity to call on one another’s expertise in the process of communicating their understanding, e-learning provides an enormous opportunity for the learners to become an active part of their own education (Blommaert, 2010). This concept of “blended learning” ensures that students “develop a much deeper and more complex understanding of their subject, where memorizing for mere regurgitation is superseded by understanding and long term internalizing of knowledge (Holmes and Gardener, 2006; Allan, 2007).
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Knowledge Management and e-Learning: Strategies for Delivering Knowledge in the Higher Education – A Case Study of e-Learning in a Corporate Setting in the Arab World

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Abstract
The main purpose of this exploratory study is concentrated on the selection and definition of variables that will enhance and realize the value in creating e-learning environments through advanced knowledge management systems. This paper takes a closer look on the relationships between e-learning and knowledge management (KM) initiatives in corporate settings. The purpose of this paper is to find out the barriers affecting or preventing e-learning from being adopted within the Higher Education Institutions as an integral part of their teaching training and learning processes.

The paper also provides recommendations for an e-learning development plan to fit the current business environment in Higher Educational Institutions in the United Arab Emirates (UAE). This study was accomplished through the administration of interviews and questionnaires that surveyed a total of 33 participants from the Academic staff working in the Universities in Abu Dhabi Emirates/ UAE. The participants’ background was specifically chosen to be that of computer science and management information systems. The rate of response was 81.8 percent (27 questionnaires were returned).

The results of the research revealed that the key implementation barriers in the UAE Universities are problems of: (1) responsibilities; (2) Information Technology and Technical Expertise; (3) Management performance and content neglect; (4) language barriers and adaptation; (5) Competency: Structuring and Content; (6) Lack of Classroom Interactivity.

Keywords: E-learning, Knowledge Management, Higher Educational Institutions, Management Performance, UAE, Mena Region

Introduction
In this paper we introduce the concept of knowledge management (KM) as an important ingredient in the delivery of e-learning in higher education. The high potential for synergies between (KM) and e-learning seems obvious given the many interrelations and dependencies of these two fields. However, the relationship has not yet been fully understood and harnessed. Knowledge is argued to be data or information with a further layer of intellectual analysis added, so that it is interpreted, and thus meaning attached structured and linked.
with existing systems of beliefs and bodies of knowledge (Magnier-Watanabe, & Senoo, 2008). Knowledge can be in tacit or explicit forms, tacit knowledge represents knowledge that people possess, but which cannot be codified, is largely subjective and difficult to share, while explicit knowledge can be codified, is objective and easy to share. Knowledge both tacit and explicit is embedded in human activities; tasks generate knowledge, and this must be managed for knowledge generation to serve its purpose and to grow. Knowledge is at the heart of much of today’s global economy, and managing knowledge has become vital to companies (and institutions) success (William, Jalang’o, and Othieno, 2010). Essentially the motivations for KM implementation within an organisation should be driven by business needs or quality of learner experience. Any KM implementation needs a clear road map that is derived based on goals & resources available. Klein (2008) suggests that sharing of knowledge is deeply interconnected with the underlying issue of how the knowledge has been created. Moreover, individuals are responsible for generating knowledge through the use of their cognitive ability. Boh (2007) describes KM as a systematic process for acquiring, organizing, sustaining, applying, sharing and renewing both the tacit and explicit knowledge of employees to enhance organizational performance and create value. Thus, KM can be recognized as the process for acquiring, storing, diffusing and implementing both tacit and explicit knowledge inside and outside the organization’s boundaries with the purpose of achieving corporate objectives in the most efficient manner. The main goal of KM is to improve the organizational performance by leveraging on the collective knowledge. Collective knowledge is created by sharing knowledge among the organizational entities. Today, researchers have acknowledged the importance of knowledge as an intangible asset and a critical resource for sustaining innovative ideas and achieving competitive advantage Epistemologists have described this era as the knowledge age and the globalized economy as the knowledge economy. The most fundamental processes in KM are knowledge creation, knowledge sharing and knowledge utilization (Pillania, 2007).

The technological pace does not differentiate the key issues of learning. Technology provides the means for the achievement of learning goals but the performance of learning has to be measured in learning terms. The effective utilization of knowledge by various organizational entities results in improved skills and competencies for decision making, performance improvement and innovations. Therefore, the knowledge of employees of an organization is an important asset and such knowledge should be garnered for the ultimate good of the company.

Understanding the Knowledge Management Phenomenon

The concept of KM is of increasingly interest to both academia and practitioners. Academic institutions such as universities have to adopt their traditional approaches in the modern setting. The e-learning initiatives both in corporate and academic environments define new ways of improving performance. In a knowledge intensive world, organizations must develop their understanding for sharing of knowledge and utilization of networks to achieve a competitive advantage. These are the main sources of competitive advantage that a company can rely on. There is a widespread agreement that knowledge assets are difficult to replicate and that they are fundamental sources of competitive advantage in open economies. The value proposition of knowledge management is now stronger than ever, and cannot be looked upon as a rare competitive differentiator, but instead as the only
differentiator. At the organizational level possible factors are linked to rewarding systems related to knowledge sharing, the organizational communication process and the willingness of the company to invest in its employees. In organizations where KM and e-learning systems are used, most working processes are very knowledge intensive and involve many people working at different locations and on different tasks (Brown, Collins, and Duguid, 1989).

The context in which people are working is changing constantly through changing work processes, different tasks or problems to be solved. Knowledge sharing should be integrated into the existing values and the overall style of the organization to reach a high level of interaction, rather than changing the organizational culture to fit the knowledge sharing goals (Reige, 2005). These facts require continuous competence development. The potential which KM offers in improving efficiency and innovation has been cited as a key source of competitive advantage (MacKinnon et al., 2002). Knowledge Management strategy depicts the general approach an organization aims to take to align its knowledge resources and capabilities to the intellectual requirements of its strategy, thus reducing the knowledge gap existing between what a company must know to perform its strategy and what it does know (Zanjani et al., 2008). Organizations have a wealth of knowledge which, is embedded in people’s head, work practices, and systems. The challenge for the organization is to be able to capture that knowledge and to leverage it throughout the organization. E-learning focuses on the development of flexible mechanisms for the delivery of learning content (Henry 2001). Learning objectives are more related to the development of the educational institutions, which are connected to task outcomes, instead of learning specific topics; learning hierarchies (e.g., skill decomposition methods) are applied to support the connection between e-learning and KM. The Internet has the potential to change that. When entering a chat room or an e-learning course room, participants are forced to interact with others without the benefit of preconceived notions. The Internet also serves as a way to break down the achievement gaps by offering educational opportunities for those who may not be able to pursue education through traditional means.

**Dynamic Learning Concepts**

The application of emerging digital technologies such as e-mail, the World Wide Web (WWW) and the Internet in the educational setting has received wide acceptance all over the world. Conventional philosophy on knowledge management argues that there are two types of knowledge i.e. tacit and explicit knowledge (Hislop, 2005). The explicit knowledge is easy to understand and share, as it can be encoded and expressed (Klein, 2008) while tacit knowledge according to Nonaka & Takeuchi (1995) is subject based, intricate in nature, hidden, inexpressible and difficult to share. The traditional view of epistemology suggests that tacit knowledge is impossible to convert into explicit, understandable and ready to share knowledge (Gourlay, 2006). Knowledge consists of information, technology, know-how and skills. Value and sustainability are created from the integration of these resources better than competitors. In the course of achieving higher performance several relations have been investigated: knowledge management theories (Lytras, Pouloudi and Poulymenakou, 2002), learning theories (Shuell, 1992) and information systems practices (Lytras, Pouloudi and Poulymenakou, 2002), are determining a complex context of interrelations. Therefore, any technology that is employed for e-learning purposes has to prove its capacity to support the process of learning in any aspect.
as well as to promote ways for the development and delivery of learning content. Organizational knowledge is first acquired at the individual level, and effective transformation of knowledge from the individual to the organizational level is essential for knowledge to become the basis for organizational capability. In contrast to individual knowledge, organizational knowledge is highly dynamic: it is moved by a variety of forces (Endres et al., 2007). Organizations have a wealth of knowledge which, is embedded in people’s head, work practices, and systems. Thus, both corporate and academic agendas have recognized the potential advantages of electronic learning, and therefore proceed in the investment towards the implementation of Information Technologies (IT), in order to facilitate learning, even outside their traditional premises (Kramer, 2000). So far, research within KM has addressed learning mostly as part of knowledge sharing processes and focuses on specific forms of informal learning or on providing access to learning resources or experts. On the other hand, learning might also benefit from KM technologies. Especially those technologies that focus on the support of technical and organizational components can play an important role in relation to the development of professional e-learning systems.

Technology is a facilitator or an enabler that requires a systematic analysis of goals and objectives. Broadband and interactive technologies have expanded further the consideration of possible modes of e-learning. Digital technologies have opened new directions for experimentation in the field of learning. The challenge for organizations is to be able to capture that knowledge and to leverage it throughout the organization (Mentzas, G., et al., 2001). Spender (2002) asserts that the intangible nature of knowledge makes it harder to identify and manage; consequently it cannot be treated in the same way as other organizational assets. It is a person-to-person approach where knowledge is shared not only face-to-face, but also by electronic communications, thus building networks of people (Cerdan et al., 2007). In recent years, KM has become a critical subject of discussion in the business literature. Both business and academic communities believe that by leveraging knowledge, an organization can sustain its long-term competitive advantages (Bhatt, 2001). Knowledge Management is related to an organizational perspective, because it addresses the lack of sharing knowledge among members of the organizations by encouraging the individuals making their knowledge explicit by creating knowledge chunks which can be stored in repositories for later re-use or participating in communities of practice; opposed to that, e-learning emphasizes an individual perspective, as it focuses on the individual acquisition of new knowledge and the technical means to support this construction process (Ras, et al., 2005).

Research Methodology and Analysis Results

This study was accomplished through the administration of questionnaires and interviews of participants that surveyed a total of 33 from the Academic staff working in the Universities in Abu Dhabi Emirate/ UAE. The participants’ background was specifically chosen to be that of computer science and management information systems. The rate of response was 81.8 percent (27 questionnaires were returned). The purpose of this paper is to find out the barriers affecting or preventing e-learning from being adopted within the Higher Education Institutions as an integral part of their teaching training and learning processes.

The interviews are focused on how e-learning and, KM contribute to the learning processes in a corporate setting. The reasons for the so far weak integration of KM and e-learning on
a conceptual and technical level are related to several barriers that are elaborated next. They are mainly based on the discussions done with the academics, and other problems identified in the literature that have not been explicitly addressed during the discussion:

Problems of Responsibilities

Respondents were asked to identify who is responsible for knowledge management and learning at strategic and operational levels. We found that in most universities (87%), employees were responsible, for formal learning at the strategic level. Only (13%) suggested that top management should be responsible in their organizations. Interviews have shown that although conceptually e-learning and KM are perceived to be closely related, the responsibilities for these initiatives still “belong” to different organizational units and supportive technologies are hardly related.

Problems on Information Technology and a Technical Level

Interviewees were also asked about the technologies for knowledge management, document management, and learning in their organizations. It is interesting to note that most interviewees (91%) indicated that the document management systems, web sites, communities are all there to facilitate knowledge management and informal learning. Systems are the typical products in the e-learning industry and several universities used dedicated technologies (e.g. Lotus Learning Space, WebCT, and Blackboard). Technology provides the means for the achievement of learning goals but the performance of learning has to be measured in learning terms. The advanced technological futures in e-learning applications cannot always be understood from traditional learners. The compromise of functionality and sophistication in e-learning applications very often is decided according to technological limitations. Limited bandwidth and other technological constraints did not permit in the past the realization of interactive learning scenarios.

Problem of Management Performance and Contents Neglect

The pillars of performance in e-learning are another critical issue. Knowledge management, e-learning pedagogy and application integration formulate a triptych of analysis. Moreover, competence management can be used for developing training paths by means of weighting training methodologies according to their potential application in order to meet defined pedagogical as well as psychological objectives (Ras, Memmel, and Weibelzahl, 2005).

In another part of the interview the interviewees were asked to identify their universities’ management performance during the past concerning the two concepts. Less than half of the participants (19%) stated that they are satisfied with their top management performance. The development effort for the preparation of content for e-learning purposes is time and cost consuming a fact that forces reconsiderations of static approaches in e-learning. The development effort for the preparation of content for e-learning purposes is time and cost consuming a fact that forces reconsiderations of static approaches in e-learning. In this direction the embodiment of dynamic features in e-learning applications as well as the establishment of standards for the reusability and codification of content is of critical importance. Performance development can be seen as an individually controlled learning process rather than a centrally-managed development initiative. To Ley, Lindstaedt, and Albert, (2005) management performance is a possible approach to facilitate learning with KM systems.

Problem of Language Barriers and Adaptation
Another important issue is that students should be able to recognize trends and to identify correlations within their daily work or the subjects they are working on. So far, most e-learning systems do not support or recognizing trends or correlations between subjects (Ras, Memmel, and Weibelzahl, 2005). This problem is exacerbated by language barriers issue. The majority of the interviewees (79%) believe that the language would bring the best of KM and learning together, and that language barriers are a serious threshold. E-learning could be much more successful by making it more cognitively adequate, entertaining, and illustrating to the learner. Adaptive systems strive to monitor students and select next learning steps. Brusilovsky and Vassileva (2003) distinguish between two types of adaptive course sequencing: adaptive and dynamic courseware generation. While adaptive courseware generation creates a course suited to the needs of the students based on a static student model before they encounter it, systems with dynamic courseware generation observe and dynamically regenerate the course according to the student’s progress (Efimova, & Swaak, 2002).

**Problem of (Competency): Structuring and Content**

Interviews were asked to identify the strategic goals of KM, and e-learning. The majority of the interviewees (81%) had difficulties in distinguishing the goals, and indicated the goals were very much intertwined. On the other hand, interviewees stated that all three had to do with people, knowledge and the organization. Organizational competency development acknowledges the fact that organizations need to support individual, work task related learning paths, so called informal learning. The environment’s delivery method should take the context into account, e.g., by tailoring content for learning on demand or long term strategic learning. Finally, most resources stored in KM systems are created in context which must be considered when reusing the material for information or learning purposes. By the incorporation of context-awareness of employees into the design of learning solutions, learning in universities could be improved. In particular, a learning environment should capture the learner’s context and characteristics (e.g., position, role, task, prior knowledge, goals) (Schmidt, 2005).

**Problem of Lack of Classroom Interactivity**

Learning tasks and activities are an important characteristic of good instructional design. Engaging learners and actively involving them in the learning process often increases motivation and learning gain. To achieve a successful strategy to make instruction effective, is through tailoring of content and teaching strategy to the learner’s individual needs and preferences. When asked about the facilitation, and providing classroom motivation benefits, only by a few of them (13%) were considered important and performed individually. Yacci (2005) illustrates an approach that creates interactive instruction out of static knowledge components as often found in KM systems. Based on this approach, existing material might be augmented and reused for learning purposes through the skills needed by students or faculty members to access instructional resources (Ras, Memmel, and Weibelzahl, 2005).
Conclusions
In this paper, the entity of interest in KM and e-learning are considered. The path to success in KM implementation involves significant changes in process, technology & other infrastructures, mindset of people and systems, process & culture of the organization. This paper contributes to the research in organizational learning and knowledge management practices by trying to identify critical issues in knowledge creation, knowledge sharing and transference and knowledge networking. The potential and barriers are outlined. The relationship between KM and e-learning has not yet been fully understood and harnessed. The study demonstrated that perceived connections between KM and e-learning are not operationalized. It is extremely difficult to achieve such significant changes that affect the entire organization through a single step. In spite of these limitations in the immediate implementation, e-learning and KM are the ways of the future for these institutions. It is a worthy decision to implement KM through an evolutionary process with adequate time for various organizational entities. Of course the required efforts need extensive justification and creative work. The contributions to this discussion showed that the integration of e-learning and KM is more than just topic-oriented delivery of information chunks by following non-adaptive processes that are prescribed by a centrally managed learning initiative.

Limitation of the Study
The limitation is the basic assumption of all universities being the same in terms of meeting accreditation conditions in the UAE. The universities may be small and large depending upon the nature of their offerings, which may be pose a question to the implementation of the framework in more complex environments. As is perhaps always the case in research of this kind, more empirical research is necessary to validate the latest developments in the field of integrated e-learning and KM and, to keep the community informed about recent developments in this research field and to keep the integration process ongoing.
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Abstract

Electronic technology has brought up many ethical dilemmas and issues that were not well addressed in the past. Software copyright infringement is one of those subjects. The purpose of this paper is to show the reasons of software piracy, demonstrate the forms and effects of it upon software and system developers, companies, programmers and the consumers themselves in attempt to explain how software is pirated and in what ways are copyrights easy to violate. The paper also describes the legal and Islamic views and laws upon copyright infringement.

Keywords: Software piracy, copyright infringement, Islamic views, Middle-Eastern laws

Introduction

According to an article posted in Newsweek Magazine “nobody will ever buy books or airline tickets on the Internet”. (Stoll, 1995) Contrarily, the use of the internet has grown to become one of the most essential factors in our lives. Throughout the years, the computer software industry has grown enormously. Software varying from video games to applications has become necessary in many households because of the vital need for technology and the internet nowadays in people’s lives. However, due to that growth, a major problem that has not been addressed before occurred, which is copyright infringement, or in other words, piracy. Because of the worldwide use of the Internet, it is often difficult to enforce copyright laws and penalties upon consumers. “Copyrights are the certain rights for an author to original work they have written. Those rights are the right to reproduce the copyrighted work, distribute and display copies of their work to public, the right to perform the work in public, and the right to produce new work deriving from the copyrighted work.” (Quinn, 2009) Therefore, copyright infringement is the illegal distribution and unauthorized copying of copyrighted material, such as computer software. Computer Software piracy is a significant offense that has arisen with the dynamic growth of the world today. Because of the simplicity with which software piracy may be carried out, it has been overlooked that it is, indeed, a crime worth punishment for.

Causes

“Worldwide piracy rates rose from 38 percent of software in business and home computers in 2007, to 41 percent in 2008 despite successes in fighting piracy in China and Russia, according to the study done by market researcher IDC for the BSA.” (Bartz, 2009)

Software piracy is rising in startling rates, but, of course, this rise is happening for countless reasons. Many studies have discussed the possible causes of software copyright violation. Ease and availability of pirated software is a main reason for copyright infringement, because of the common availability of pirated versions of software, it is mostly easier for consumers to find and use pirated software, and that is mainly related to
the high rise of piracy, which leads software developers to complicate the security processes for software pirates, such as asking for the serial number or so. But this complication negatively affects users, because some software is just too complicated to install. Software pirates can always find a way to pirate the software, for that, many consumers are going to use the pirated software because it is simply, easier to get. Another reason is the assurance of the nonexistence of punishment, as in the case of the Middle East, where there are no strong clear laws for software piracy, and even if they exist, they are, mostly, not applied as they should be. Many software pirates are certain of their safety from any punishment which makes them indulge even more in the crimes they are committing. The high cost of the software, the severity of potential punishment (punishment severity), and the probability of being punished (punishment certainty). Each of them was found to be an important factor in the decision to pirate (figure1), and the model was found to account for 65% of the variance in piracy intention. (El-Sheikh, Peace, Rashed, 2005)

![Figure1. A Model of Software Piracy Behavior](image)

**Forms**

“The ethics of piracy are not as cut and dry as it may first seem. By definition, when piracy is committed, the copyright agreement or software license is violated, clearly breaking the law. However, does that make the act unethical? Obviously, the fact that something is illegal does not necessarily make it unethical, and vice versa. [...] So, while piracy is technically stealing, it is quite different in nature than the stealing of a material item, where the original owner is then denied the usage of the item taken.” (El-Sheikh, Peace, Rashed, 2005)

It might be surprising to know that one might be unintentionally pirating software thus leading oneself into a piracy trap. Therefore it is important to educate oneself about the types of copyright infringement of software.

**Soft-Lifting**

It occurs when the consumer buys a single copy of the software and installs it in several machines, whether it is copied to give a copy
to a friend or for self-use in different personal computers.

**Counterfeiting**

When unauthorized copies of software are duplicated and sold as “legitimate copies” produced or legally authorized by the legal publisher. The counterfeiter typically will use trademarks to make the product look like genuine software (Types of software piracy, N.D.).

**Internet Piracy**

Internet piracy occurs when uploading commercial software from the web, software that is not freeware or public domain, on to the Internet for anyone to copy or copying commercial software from any of these services. “On June 27, 2005, the US Supreme Court issued its ruling in MGM v. Grokster, ruling that the providers of software that designed to enable “file-sharing” of copyrighted works may be held liable for the copyright infringement that takes place using that software.” (Combating threats of copyright infringement of software, 2008)

**Unrestricted Client Access**

Unrestricted client access piracy occurs when a copy of a software program is copied onto an organization’s servers and the organization’s network “clients” are allowed to freely access the software in violation of the terms of the license agreement. (Combating threats of copyright infringement of software, 2008)

**OEM Piracy**

Some software, known as OEM (original equipment manufacturer) software, is only legally sold with specified hardware. When these programs are copied and sold separately from the hardware, this is a violation of the distribution contract between the vendor and the software publisher. (Combating threats of copyright infringement of software, 2008)

**Commercial Use of Noncommercial Software**

This is simply using noncommercial software, and then selling it for a relatively-high price for a commercial value.

**Manufacturing Plant Sale of Overruns and ‘Scraps’**

Software publishers routinely authorize CD manufacturing plants to produce copies of their software onto CD-ROM so that they can distribute these CD-ROMs to their authorized vendors for resale to the public. (Combating threats of copyright infringement of software, 2008)

**Effects**

From a utilitarian or consequentialist perspective, where the focus is on the results of the action more so than the action itself, arguments can be made that an individual act of piracy is not unethical. Assume that an individual can significantly improve his or her productivity in the workplace by installing a pirated copy of Microsoft Excel. While the employee completes the same amount of work in a single day, he or she is now able to leave work earlier and spend more time with his or her family, thus increasing their happiness. If the organization was not going to purchase the software under any circumstances, it is difficult to claim that Microsoft is financially damaged, as no sale would have taken place. In any case, one further sale of Excel would do little to impact Microsoft’s overall profits, and most likely would not outweigh the good created by the employee playing with his or her children, for an extra hour or so each day. In the end, the individual and his or her family benefit, while the creator of the software is not significantly harmed. The organization, and even society, may also benefit, as the individual and his family will be happier and the employee will be under less stress to complete things on time. From a utilitarian viewpoint, the
benefits of this single case of piracy may outweigh the costs, implying that the act is ethical in nature. (El-Sheikh, Peace, Rashed, 2005)

But when applying the Kantianism theory, the theory that emphasizes on universalizing actions and never using others as means to ends; by pirating copyrighted software (i.e. Microsoft Excel), one would be using other as ends to their own mean, as in the earlier example, the mean is spending time with family. Moreover, when universalizing this action, if pirating software was acceptable, many people would do so, causing the providers of the software huge financial losses, therefore, companies would not produce the software anymore, and that leads to damages and harms for both individuals (users) and the producing companies. So the drawbacks outweigh the benefits, suggesting that in the Kantianism theory’s prospective, this action is morally wrong and harmful as well. After explaining some of the ethical theories’ prospective, here is an explanation of the estimated problems that has arisen with software piracy:

**The Probability and Expectation of Piracy**

The probability or suspense of the software’s copyright violation may cause some products not to be marketed at all. That is because the manufacturers or producers do not believe that legal sales would be enough to recover the costs of production and distribution. Consumers also suffer a cost in this matter, because the benefits they would have gained from getting the software may be higher that the loss they had in paying its price.

**Decrease in Sales of Legal Copies**

Pirates sell their products at prices extensively lower than the original prices of the legal copies. In addition, some unauthorized copies are produced for noncommercial reasons (e.g., making a copy for a friend). There is a substantial difference between getting a copy for free from a friend and even buying the software for a much cheaper price than buying the product with the original street price. Therefore, the number of additional authorized copies that would be sold is not nearly as high as the number of the illegal copies.

**Retail Price Effects on Piracy**

The convenience existence of reasonably-priced, high-quality illegal copies of software minimizes the demand for authorized copies to the level that certain users purchase unauthorized copies instead of legal ones. Remarkably, the effect on the street price of legal copies can either be positive or negative.

**Positive**

Original prices might become higher if most price-sensitive consumers switch to pirated software while the price-insensitive consumers do not. The existing market for legal copies will have less price-sensitive requests, thereby causing the manufacturer's profit-maximizing price to increase, which partially balances the fall of sales that occurred from software piracy.

**Negative**

On the other hand, if the consumers’ price-sensitivity does not differ from one consumer to another, the prices of legal copies will fall, causing the developers more losses from their software.

**Non-Profit Losses**

Counterfeit copies of a movie, for example, can degrade reputation of the movie because of the low quality of the copy, causing the consumer a decrease in some essential features and major assets in it.

**Islamic Views**

Islam is a way of life. “And in whatsoever you differ, the decision thereof is with Allah”. (Qur’an, Surah 42, Ayah 10) The religion of
Islam is based on the obedience of Allah, and that good actions are aligned with the will of God and bad actions are those contrary with it.

“Islam is considered to be a comprehensive religion and its ethical system is considered to be one of the major ethical systems. Owing to the importance of establishing an ethical system in the field of IT, especially at our present time which is witnessing an ever increasing ethical problems.” (Al-Ali, N.D.)

“O, you who believe, be afraid of Allah, and be with those who are true”. (Qu”ran, Surah 9, Ayah 119.) This Qu”ranic verse clearly stresses on the importance of being truthful telling the whole truth and how God distinguishes those who tell the truth and how they are rewarded for their good deeds. It encourages people to be in the group of those who are honest and only tell the truth. (Al-Ali, N.D.)

“Every soul will be (held) in pledge for its deeds”. (Qu”ran, Surah 74, Ayah 38) “There are countless Qu”ranic verses and Hadiths telling Muslims to respect Islamic and worldly laws. […] This verse emphasizes that an individual is responsible for their own actions. (Al-Ali, N.D.) These verses are just two of many verses and Hadith that stress on the importance of telling the truth, and respecting moral laws and ethical rules. Software piracy is, by logic, considered stealing. For that, it is something against our Islamic beliefs. A Muslim needs to respect and obey those rules, even if there is no clear, straightforward verse or Hadith about software piracy, but many indicate that these actions are morally wrong.

**Findings and Possible Solutions**

“A single act of piracy in a situation where the software would never have been purchased seems the easiest to defend, from an ethical standpoint. However, if the piracy is replacing a potential legitimate purchase, the equation is changed. Any large scale commitment of piracy of this type would lead to serious damage to the software industry which, in turn, would negatively impact future software development. It could certainly be argued that the costs would outweigh the benefits.” (El-Sheikh, Peace, Rashed, 2005)

One of the major reasons for software piracy in the Middle East is the availability of pirated software. It is not the pirates themselves who are the problem; the problem is with the customers who are interested in buying the software. As dense as the protection can be on a piece of software, pirates can always find a way to crack it, and when a piece of software is cracked, it is available for anyone to download and use. What developers need to do is educate and edify people about the importance of having the legal software instead of the pirated, and developers also need to make the software easy to install, offer a demo on their product, and as well offer continuous updates and bargains on their products and software.

“Every one of you is responsible, and every one of you is responsible for their flocks”. (Hadith) “This Hadith talks about responsibility for ones actions and the actions of their group/subordinates or folk.” (Al-Ali, N.D.) The ignorance and the non-existence of laws concerning pirated software is another major reason for software piracy in Middle East countries. Middle Eastern governments need to set clear laws and penalties against software piracy and software pirates, where people can report any violation and illegal selling for pirated software.

“Software piracy is, roughly speaking, theft. The solution is not just to seek out and punish wrong-doers, but to find a solution for all these groups of people who, for one reason or other, wish to use the software, but cannot, or will not, find the means of paying the present market cost. An imaginative solution to this problem could well be the break-through that a company needs to make it known in every
household, provided the product is correct.”
(Fowler, N.D.)
Conclusion

In the end, software, pirated or not, affects one and all in numerous ways. Some companies nowadays are selling more affordable software packages that are “slightly simplified” (Fowler, N.D.) and ideal for students, and of course, are being sold to everyone. This trend is the perfect step to start decreasing the growing problem of software piracy these days by making people purchase affordable versions of software. Other developers or programmers sometime offer free software for students’ use that might not be as specialized or has as many updates, but are a good step for advertising the software and to observe how many students are really benefiting from the software and it might also affect the future of software development. Software piracy is legally a crime, but it is a crime that is still acceptable in our society nowadays. Very little has been done to combat it for a number of reasons, and that might be due to the reason that people do not really believe in its importance. One reason is that it is almost universal amongst users of computers to use pirated software. Many people "need" to install applications nearly once per year and do not wish to pay the at times unbearable cost for getting commercial licenses. Companies have made no real attempt to struggle it until now, since this is a form of free advertising, because people would recognize the software more when the pirated versions are available, and the benefits of having free software available to students have been mentioned above. (Fowler, N.D.) “In reality it is relatively simple to make something extremely difficult to copy. Impossibility is a dream in the computer world these days!” (Fowler, N.D.)

Developers lose revenue from pirated software, from the current products as well as the future programs. When software is sold most developers invest a portion of the returns into future developments, better software packages and antipiracy programs. When developers lose revenue from the sale of the product, it holds back the development of new software and strangles the growth of the software company and the software developers.

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Managing 21st Century Quality Teacher Education in Developing Countries: Prospects and Challenges

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Abstract
Technological changes necessitate new pedagogical approaches. The 21st century has witnessed changes in ICT that require both digital migrants and the digital native both teachers and students to learn. This poses challenges to educational managers and implementers, especially in developing countries as a result of technological turnover that requires continuous re-training, and changes in the modality of teacher preparation and in-service programmes. Consequently both developed and developing countries need to redefine the content and quality of teacher education.

Keywords: quality, teacher education, pedagogy, globalization, developing countries

Introduction
To ensure quality teacher education, skills to manage in-service training and teacher support are imperative. Teacher education in the 21st Century necessitates new pedagogical approaches as the result of advances in ICT and international partnerships created. Partnerships have made possible transference of knowledge, skills and culture amongst nations. For teachers and other professional to excel in the 21st century they are to be kept abreast with international matters and its impact (Papastamatis and Panitsidou, 2009). In such cases the global competition requires teacher education to support learning of multiple skills to compete in the global market. Continuous training of teachers through in-service courses can be seen as potential toward creating adaptive skills in the 21st century. Constant changes require adoption of new skills in implementing the created change opportunities. With the low scales of economy, developing countries are facing challenges on how to manage its teacher education in the 21st century in order to produce teachers who are capable of enhancing multiple skill development among learners.

The issue of managing quality teacher education in the 21st century faces many challenges. These challenges sometimes emanate from the notion quality itself. In the era of globalization, each country is to prepare a global teacher, a teacher who is able to address global issues. However, quality of teacher education is guided by country specific educational policies. There are countries, for example, Tanzania, where the curriculum is centrally controlled, in such countries; teachers become mechanical implementers of the given curriculum. Each student at the end of the education cycle is tested by the examination set by central examining agencies. Such cases where curriculum is centralized, quality of teacher education can be measured by the ability of teachers to deliver the curriculum content to the learners. The emphasis is then developing teachers’ competence in delivering the curriculum content. In any country the existing curriculum forms the focus of teacher training. The problem arises when new
changes are incorporated in the curriculum as a result of new changes in a policy guiding education system of a country. For example, the issues of inclusive education and teaching ICT in schools require new ways of educating teachers. In the case of inclusive education teachers were not prepared to teaching children with special needs and disabilities in their classes. Global market requires individuals to be competent in using ICT facilities of which schools in most countries cannot adequately offer. In this case managing quality issues in education are therefore catered differently in different contexts, with a goal to prepare individuals to serve both locally and internationally.

In USA the focus is on standard-based teacher education, where quality of teachers is measured on how the learners learn and achieve as a result of teaching. Teachers are prepared in Universities. There are preset standards that learners are to achieve. As standards do change a continuing professional development that engages teachers in their teaching and learning is set (Ferguson, 2000). In similar cases, teachers licensure is controlled in a way that teachers are required first to show evidence that learner do learn when they teach. For example in Oregon, to ensure teachers pursue professional development courses, licensure is specified for a specific period of time and renew is conditional to teacher professional development (Ferguson, 2000). In such cases, teacher training and retraining is centrally managed.

In Finland, teacher education is research-based. The teacher education qualification is obtained through a university, and that each teacher is trained in research skills. To graduate each teacher has to attend research courses and write a bachelor thesis. The aim of the research-based teacher education is to prepare competent teachers able to teach, do research and make sound decisions (Kansanen, et al, 2000; Westbury, et al, 2005). To ensure that teachers work closely with universities, all in-service courses in Finland are offered in universities.

From the two examples of two countries, USA and Finland, both seem to have a different way of preparing teachers and organizing in-service courses for teachers. Where teacher professional development is tied to university, teachers and university researchers do work together ensuring innovations in both schools and universities are created and implemented.

Like developing countries, shortage of teachers might be a global issue, some regions in USA in different times faced shortages of teachers, especially, the science teachers. For example Texas had a deficit of 6000 teachers in 2000 (Eller, Doerfler, and Meier, 2000). Eller et al argue that shortage of science teachers is a result having skills needed in private sectors. In this case, government in USA is faced by a challenge on how best to retain trained teachers. In developing countries, shortage of science teachers is a result of few students who qualify to be science teachers. Where science teachers are available issue of retention do arise, as, in both developed and developing countries private sector do create conducive working environment and pay higher salaries. Issues of managing quality teacher education in the 21st century are worthwhile pursuing in both developed and developing countries. In this paper authors discuss prospects and challenges in managing the 21st century quality teacher education in developing countries.

Quality Teacher Education in the 21st Century

Quality teacher education in the 21st century seems to require a new looking. In the 21st century we witness many challenges facing the society. Some of the challenges include globalization, internationalization, educational reforms both locally and
internationally, disability issues, and the how to attain millennium development goals. These challenges have resulted countries, including Tanzania to change their curriculum and formulate policies in order to address such issues. The area that is affected in any social, economical, and political changes is teacher education. It is the teacher education that prepares individuals who would facilitate learning to the entire community, called, teachers. In this case quality of teachers is dependent on teacher education. It is important to find out issues that might be addressed in order to ensure quality of teacher education in the 21st century.

What teachers learn in initial teacher preparation might not cover all they need to know about teaching. The environment in which teacher learn might be very different to their working environment to which they are prepared for. There is a need to compensate skills learnt in schools through professional development. Quality of teacher education to this end might be how teachers are prepared and inculcated in ability to engage in what Wenger (1998) calls ‘community of practice’. In the community of practice teachers might discuss matters pertaining to pedagogy, curriculum and educational reforms that affect their teaching within their context.

With introduction of ICT as a result of globalization, quality teacher education in the 21st century might be one that incorporates use of multimedia and the internet. It might be remembered that teacher education in the 20th century has no use in the 21st century and the near future. The 21st century teaching is dominated by use of technology that includes the web, and the multimedia. As pointed by Anderson (2010), teaching in the 21st century is challenging to teachers. Most students are digital natives and whereas teachers are not conversant in use of ICT. The type of content to be taught in teacher education to enhance teaching of ICT is worthwhile to be considered. The question of the type of training, quality of training and resource mobilization become central in debates pertaining to teacher certification.

Considering status of teachers in the 21st century, we find a mixed mode of teachers within nations. We find teachers trained in different countries implementing curriculum in different countries with different mode of operations. There are also possibilities of curriculum from other countries being implemented in a local country, under the umbrella of international schools. In such instances, issues are how to determine the quality of teachers, who should determine the quality, and what skills might be needed for one to manage a heterogeneous teaching force.

Managing Teacher Education in the 21st Century

Management of teacher education is an issue of discussion as to the type of management and the pre-determined outcomes of teacher education. There are those who believe that 20th century education did not play its role and thus lead to war and violation of human rights to live together (Braslavsky, 2003). The 20th century education is said to have been more technocratic and depended more on teaching the content that characterized its education as discipline-based. The emphasis was more on discipline and method. Such scholars call for paradigm shift so that education acts as a catalyst for peace. According to Braslavsky (2003) there are about six demands for education that include changes in work profiles that seem to be more heterogeneous, in many cases shrinking as a result of globalization; counteract deepening social inequality; embrace diversity; educate individuals for better forms of representation as citizens; enhance decisions on issues arising from advances in technology and the quality of life of individuals and communities. The 20th century education system was made in such a way that ‘some people would learn
to think and make decision for others while others would act without thinking too much’ (Braslavsky, 2003). In the 21st century education system need to allow all people to learn to think, act, and make decisions that would allow innovations of new job placements. It is the role of teacher education to inculcate knowledge that would support learners to develop new jobs. The question of curriculum remain to be central in decision of what knowledge, skills, attitudes are to be developed amongst learners in the 21st century. Understanding issues pertaining to teacher characteristics forms the basis to understand how to manage the teachers and teaching.

The 20th century education system need not be entirely criticized in three ways. First, it laid foundations for the 21st century. It is within the discipline based learning where innovations were possible. The growth of innovation was likely to come up with some challenges on how to maintain and create further innovations. It is the innovation that created job scarcity with invention of machines. Therefore, in the era of a number of sophisticated equipments, education required need to look at the effects of such machines to the life of individuals. The more the sophisticated machines the less is the personnel required and the higher is the demand of skills to use the machines. Already such sophisticated machines exist and will continue to exist.

Secondly, problems emanating from violation of human rights still exist in the 21st century, but in a new form. In the 21st century we witness problems of corruption, drug abuse, unemployment, hunger, poverty, environmental problems, and internal political problems for power mongering (e.g., Burundi and Rwanda genocide; the Democratic Republic of Congo civil war; and other civil internal civil war in Kenya and Ivory Coast). In such cases how teacher education might be managed to create peace in every country might be imperative.

Thirdly, the number of people living in absolute poverty is increasing as there is a big number of individuals still excluded from enjoying life experiences brought by innovations in the 21st century. Such groups of people include persons with special needs and disabilities, the minority groups, women and children. The gap between the haves and the non-haves still is increasing. And the available technology still is increasing the gap between those who are capable of acquiring and using technology and those who do not. There is a need to come up with teacher education system that might address issues of innovation, peace, equality, equity, and poverty.

Braslavsky (2003) proposes teacher education in the 21st century to develop competences that include citizenship, wisdom, empathy, institutionalism and pragmatism. Citizenship will inculcate a sense of belonging to the society in the context of globalization. Each learner need to have skills necessary to support current and future life. In the case of wisdom is the teacher education system allows students to develop ability to pose questions and provide their point of views. Or still learners are in a state of rote learning? How teacher education is fostering feeling for others? Are teachers prepared to manage classes with children from different cultures? Remember there are cultures that do not allow children to pose question to an adult. It is therefore, important for teacher education to train teachers to conduct research and determine students’ behavior as they teach. Good behavior can be allowed to continue and bad behavior could be made to stop. Are teachers trained to keep institutions alive in the electronic era? There is a danger of killing institutions where people do learn how to live together. Do we have peer learning in any group? Do we have internal teacher facilitation in different issues?
Method and Data Collection

In determining prospects and challenges in managing quality teacher education in developing countries authors interviewed students teachers in open and distance learning (10), teacher educators (10), non-education students in open and distance learning (10), student teachers from conventional universities (5), secondary school students (10) and workers at the open university of Tanzania (10). Student teachers were interviewed because are the ones required to manage teaching in their schools. In open and distance learning most of the students are those already employed and want to learn more about teaching. The interest of including different groups of people was to understand management of teacher education in the 21st century from the views of the participants. According to Maykut and Morehouse (1994) participants in a qualitative study are expected to have rich experiences in the social phenomena under study. Regarding experiences, both participants are living in the 21st century. In that the ideas they experience what teachers are teaching in schools and what other people talk about teaching in the 21st century. All participants were asked to answer questions that included: If you are given an opportunity to suggest management style in teacher education today, what would you suggest? What do you think are the characteristics of the 21st century teacher? What are the prospects and challenges teachers are facing in their teaching today? What would you suggest to support teachers in their teaching? Students had an added question are you enjoying in schools? What should be done by teachers so that you are motivated to learn? For adults and parents had an added question, if you are given a chance to choose a teacher to teach your children, what characteristics would you consider for a best teacher? Apart from the empirical study, researchers also did literature survey on different countries focusing on prospects and challenges of managing teachers in developing countries in the 21st century. Other countries were included in order to bring the concept of developing countries as described in the paper. Developed countries also are cited in order where necessary.

Results and Discussion

It is important to understand the qualities of teachers in the 21st century. It is upon understanding the characteristics of teachers it is where one can understand how to manage teacher education in the 21st century. According to the respondents teachers in the 21st century are expected to be: ICT literate, use friendly teaching methods, are motivated to teach, well educated, competent in the subjects they teach, capable of doing research, know much of educational psychology, learn management skills, learn local and international culture, be flexible with changing technology, be a holder of teacher education qualification, be innovative, learn interpersonal communication skills, be competent in both local and international matters, learn peace-building skills, be able to include all children, be motivated to teach persons with special needs and disabilities and be motivated to lifelong learning.

Teaching using Technology

Respondents were of the opinion that 21st century teachers are to be able to use technology in their teaching. There are number of factors that make teachers unable to use technology. Such factors include: being demoralized, attitude toward technology, poor school infrastructure, relevance of the curriculum, and availability of ICT resources. One of the students had this to say:

To me I feel bored when in computer class; the teacher talks and writes notes without allowing us to practice. If you ask why, the teacher says that the computer is not working.
And sometimes the teacher tells us that there is no software related to what is being taught. If you ask internet the teacher says it is expensive, just write notes and you can try in the internet café. When I ask my parent to pay for practicing internet in an internet café the parent says I am still young. My parent believes that internet teaches bad things to children. [Segito]

Students are not motivated to learn in a technology class with shortage of resources and or inadequate teaching competence of the teachers. It is acknowledged that technology in developing countries is expensive due to a number of factor that include bad after sales contracts, shortage of technicians to repair the hardware, attitudinal factors among staff and low economies of scales among both the educational stakeholders and the government. According to Osokoya (2010) in Nigeria, teacher education started in the 15th century, and that changes made are in line with what is current in the teacher education. The final amendment of Nigeria teacher education, all teachers are required to have at least a minimum certificate in education. The belief in Nigeria like other nations is that ‘no education system can rise above the quality of its teachers’. Three of the five goals for Nigeria teacher education are to produce ‘highly motivated, conscientious and efficient classroom teachers for all levels of education system; encourage spirit of enquiry and creativity in teachers; and enhancing teacher commitment to the teaching profession’ (Osokoya, 2010). It is envisaged that where such goals are met learners are expected to be highly motivated. Igwe (2005) notes importance of ICT in education in Nigeria. However, issues of resources are still affecting the delivery of education in Nigeria. It can be argued that for ICT education to be properly managed access to ICT equipment and facilities by both learners and their facilitators is imperative. In short both are learning, teachers learn in order to teach and children learn in order to meet their current and future educational goals. In relation to developing countries, including Tanzania, it has and it is still difficult to meet such conditions, especially with inclusion of persons with special needs and disabilities. One of the respondents said A would like to be taught by a competent teacher who knows well the subject matter and the way he presents. To me I do not know sometimes what the teacher is doing in the class, as I do not see. … I would suggest the government to support teachers by providing some courses [Maso, a student with visual impairment]

Meeting all learners need in the era of ICT is still difficult as the 21st teachers is said to have a quality of innovative. However, one is likely to innovate in an area conversant with. In the case of teaching children with visual impairment, teachers need special skills that are lacking. In similar cases parents also have opinion that they would like their children to be taught by a competent teacher. As one of the parents say:

I feel comfortable when my child is taught by an educated teacher at least with Advanced secondary education [Pendo, a parent].

Opportunities and Challenges

In developing countries the management of 21st teacher education has a number of opportunities that include: availability of persons to be trained, availability of open educational resources that need to be adopted for use; available large number of institutions that are likely to collaborate for effective delivery; enthusiastic learners who would use the created opportunities from the resources; availability of resources in both print and electronic forms; available opportunities to form collaborations and partnerships with developed and other developing countries,
available programmes to alleviate extreme poverty and teachers who need to update their skills.

Apart from the opportunities being created there are challenges inherent to effective technological pedagogical content knowledge as ascribed by (Koehler and Mishra, 2009). The interaction between content, pedagogy and technology knowledge is important for effective teaching using technology. The issue is what are the challenges then? If about content are what teachers teach in schools, about pedagogy teachers are partly trained, the issue is about technology and the way to integrate technology with other components. Integration of technology, content, and pedagogy the challenges include: Low budgets set for teacher professional development; low morale from teachers to change; inadequate furniture in schools; shortage of funds to purchase ICT equipments; poor infrastructure that include electricity and internet connectivity; inadequate trained staff to train teachers; inadequate technical staff to support teachers; and the inability of teachers to conduct research on their own teaching.
Conclusion

It is envisaged that content and quality of teacher education in the 21st century are issues need further research and discussions conceptualization and its attainment. Some are setting standards others are focusing on research-based teacher education. However one would agree that creating teachers community of learning, where, teachers ponder ideas and implement in class, there are possibilities of easing management challenges toward 21st century. For teachers professional development there is a need to plan in such a way that it is run within their teaching context. The professional development courses might act as a bridge toward the have and have-no-knowledge. There is a need for governments to invest both in initial and post certification training of teachers. It is through teacher education, the 21st century education system will benefit all those who need to learn and become active participant in innovation of ideas and actions necessary for development.
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Prospects and Challenges of m-Learning in Open and Distance Learning in Developing Countries

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Abstract
M-learning is one of the possible ways of increasing access to education and supporting open and distance learning in developing countries. For example in Tanzania, more than 98% of learners in ODL have mobile phones. Regardless of its enormous importance, M-learning, has not been taken seriously as a way to support education services. Issues surrounding the M-learning include the quality of devices, quality of software, and the cost implication of using m-learning. However, if well harnessed it is likely to enhance access to education for all, including, those with disabilities.

The paper reports an assessment on how M-learning might support Open and distance learners in developing countries. Authors surveys a number of research findings in developing and developed countries. Factors that hinder the use of M-learning are discussed and the future prospects are suggested.

Keywords: m-learning, developing countries, disabilities, open and distance learning

Introduction
In the era of using information and communication technologies (ICT) in learning, the divide between distance education and the conventional learning seem to be blurred (Reddy and Srivastava, 2003). Both distance and conventional education institutions embrace use of information and communication technologies (ICT) in delivering learning contents and creating learning platforms. The motive toward use of ICT is to make learners manage their own learning. Learning facilitators’ role is making learning content available by creating flexible user friendly learning management systems accessible to learners. It is this process of ensuring that learners are centre of learning there emerged m-learning which makes learning content available anywhere at any time.

M-learning is a result of developments made in wireless technologies and mobile phone computing capabilities. Costabile et al, considers m-learning to be a combination of e-learning and mobile computing focusing on freeing learners from constraints of time and location. Economides (2008) views m-learning as the intersection between online learning and mobile computing that supports knowledge production and transmission among educators and learners, whereas Deegan and Rothwell (2010) define m-learning as learning mediated by mobile phones and wireless technologies that allows the learner and their learning facilitators to interact anywhere and anytime. For the context of this paper m-learning might be regarded as the relation that is established between the learners, the instructor, the mobile-phone, the context, the connectivity
and the content for the purpose of mediating teaching and learning process.

In using mobile phone, learners are becoming responsible for their learning process (Chun & Tsui, 2010). For m-learning to be realised learning contents are to be accessible via a mobile phone screen (Ally, 2004). The learner cost of internet, connectivity, and quality of mobile phones plays major role in implementing m-learning. Where the cost of connectivity and mobile phone capable of accessing internet is higher few learners can afford. The quality of mobile phones sold in developing countries is a challenge; most of the mobile phones do have low capability in accessing internet. Where they are able to connect to the internet, the bandwidth of the wireless connection are inaccessible in most of the places.

In distance learning, learners are responsible for their own learning. Learning management systems designed to support distance learners are to bring the learner needs forward. Different learners might require different type of technology in relation to their affordability, ability to use, infrastructure and instructors’ ability to support learning using the availed technology. As mobile phones are available and used by many individuals, including those with special needs and disabilities, m-learning when harnessed have potential to support learning to all in both developed and developing countries. In developing countries where education focuses on implementation of education for all (UNESCO, 2000) and millennium development goals (MDGs), m-learning is likely to ensure learners are provided with equal opportunity to learning.

Provision of equal learning opportunities in the 21st century is a challenge to instructors in terms of learners’ diversity as a result of age differences, technological awareness, disabilities, minority, knowledge divide and the digital divide in addressing educational issues. In the 21st century most of the learners are ‘digital natives’. Digital natives are learners exposed to ICT gadgets, they make use of electronic equipment as part of their daily life styles, and thus more exposed to technology (Prensky, 2001; Cobcroft, Towers, Smith, & Bruns, 2006). One of the technologies that make people connected is the mobile phone. Making a mobile phone to be a learning tool is imperative.

Instructors who are ‘digital immigrants’ need to change, as learners they teach are diverse in nature, some are digital natives and others are ‘digital immigrants’ (Prensky, 2001). The challenge toward assisting instructors to support the digital native learners in their learning using m-learning becomes that of having less knowledge and skills in preparing materials that can be accessible via mobile phones. In developing countries both learners and instructors seem to be digital immigrants because ICT in most developing countries is not part of school curriculum. Furthermore, instructors are not sure of the competence of the ‘digital natives’ (Li & Ranieri, 2010) and are not trained on how to determine level of competence of their learners. Issues at discussions have had been the choice of mobile phone, the type of content and the form in which content might be presented in a mobile phone.

Tanzania opened up doors to open and distance higher education in 1992 by act No. 17 of 1992 which endorsed the establishment of the Open University of Tanzania (OUT) and became operational in 1994. In Tanzania the door for people with disabilities to higher open and distance education especially those with print disabilities came later as started in 1997 with a support from DAAT. The Open University of Tanzania, in realizing the challenges ahead on ensuring learning resources are available and accessible to the learners, established an institute specifically dealing with issues of ICT, The Institute of Educational Technology (IET).

OUT learners are scattered all over Tanzania and beyond which makes use of ICT
imperative. For example OUT has established a coordination centre in Kenya. With the support from Swedish program for ICT in Developing Regions (SPIDER) which started in 2006, OUT has made a progress in providing ICT training skill services to the OUT staff, students and the general public. In Tanzania ICT is not provided in most basic and middle education institutions making most of OUT students untrained in ICT skills. The potential of m-learning is being explored and that the OUT management is in discussion with some mobile-phone operators on reducing the tariffs when OUT learners and instructors download learning resources from OUT servers.

**Literature Review**

In a study conducted in Europe where 300 individuals responded, it was with available support, m-learning has ability of creating confidence, motivating learners, improving reading and writing ability, improving teaching (So, 2009), supporting the learning of languages (Cavus & Ibrahim, 2009), encouraging learners to learn technology and that m-learning removes educational formality which causes many learners to be disinterested to learning (Attewell and Webster, 2004). To develop instructors’ ability to facilitate learning of skills to support learners, constant professional development is imperative. The professional development courses ensures, instructors change from ‘instructivist to constructivist philosophies’ where instructors become constructors of knowledge in order to have ability to influence learners’ positive change in knowledge, skills and attitude toward learning (Afshari, Bakar, Luan, Samah, & Fooi, 2009). The constructive philosophy in the era of 21st century need to be highly encouraged, as supports learners to construct their own knowledge that might be used in their own context and that m-learning is a possible avenue.

In 2008 Motlik observed that the cell-phone diffusion which is on increase in developing countries, including Tanzania, suggests choosing m-learning as compared to web-based strategies through internet in PCs. In Tanzania Motlik (2008) citing Polikanov and Abraham (2003) observed the increase in use of cell-phone to be higher than in UK and that the use of cell-phone was higher as compared to landline. In view of increased accessibility to cell-phone, Motlik (2008) suggests that use m-learning might improve access and retention to distance learners in developing countries in Africa and Asia. Distance learners where cell-phones are used would be easy to getting learning resources and interaction with instructors might be improved. In supporting distance learners, m-learning has potential to supporting learners through accessing web-based internet resources, teaching using SMS, providing information to distance learners, doing examinations online where respondents send SMS. For example in Phillipines, though cost might be higher in using m-learning, some students find it user friendly as compared to PCs (Motlik, 2008).

For m-learning to be effective, development of cell-phone infrastructures, development of m-learning resources, cost of SMS for learners, availability of connectivity and type of mobile connection are factors to be considered. Motlik (2008) observes 3G connection to be more suitable for m-learning. The challenges are that though SMS do not ‘frozen’ and that SMS reduces postage cost and time of delivery of information, most of governments in developing countries have not taken seriously issue of developing cell-phone network and power systems that ensures all-the-time connectivity. Connectivity in most developing countries is available in urban areas where more than one operators are licensed, this, results to persons having to subscribe to more than one cell-phone operator and makes it difficult to learning
facilitators to deliver learning resources to learners.

Mobile phone as learning tools has the capability to provide learning resources to clientele at any place anywhere and anytime. The mobile phone capability to being less bulky and affordable by many students results to small ratio (mobile phone: students) as compared to PCs (Cheung & Hew, 2009). However, the m-learning technology is faced with a number of challenges that emanates from social, educational and technical challenges (Ally, 2004; Maniar, 2007). In some countries, using mobile phone is said to cause learning distraction in what teachers call proper learning (Hanna, 2010). In such countries there are laws that restrict students to have phones. There are security issues prone to m-learning that are likely to cause ethical issues that include privacy and ownership when using the device (Ganger & Jackson, 2003). In terms of cost of network connection fees are much higher. Not all mobile phone devices can support internet access. The design also causes challenges that include the small screen size, navigational issues as a result of poor preparation of m-learning materials, interface issues, limited memory capacity especially for smaller devices, skills to synchronize with other devices and the type of operating system used.

In most cases m-learning though is user friendly faces attitudinal challenges from members in the community including the parents (Shuler, 2009). Parents are pessimistic in accepting mobile as more a learning tool than distracter.

Method

A mixed method research strategy was used to assess the prospects and challenges of m-learning in open and distance learning in developing countries. The method employed included literature review in what is done in developing countries coupled with an empirical study in Tanzania. Tanzania is one of the least developing countries. Data collection methods employed were questionnaire, focus group discussion, individual interviews and documentary review. The research participants included 20 ordinary students, 3 students with visual impairment, 4 students with physical impairment, 3 instructors, 4 administrators, 4 ICT technologist and 8 other non-teaching staff at the Open University of Tanzania. All the participants in the study had an experience of being in open and distance learning institution for at least 2 years. It was anticipated that persons with longer experience are more likely to provide information pertaining to the prospects and challenges of deploying and sustaining m-learning in a distance learning institution. Literature search was done using key words ‘m-learning in developing countries’, ‘m-learning prospects and challenges’, and some specific search in a specified country or region. For an article to be included in literature review or discussion of the results had to meet set criteria that: it is about m-learning, it is providing a research based or concept paper presented in a conference or is in a peer reviewed journal, and that at some point it describes implementation of m-learning in a developing country. Articles comparing implementing m-learning in developed and developing countries were also included. Articles focusing on pure technical aspects of m-learning were not included.

Research Findings

The research participants had different views upon implementing m-learning in developing countries. About 10 participants had a view that m-learning need a careful planning as there are possibilities of information not reaching the students due to infrastructural barriers. Students provided examples of cases where one is travelling from one place to the other and having access to connectivity in
only some places. As one of the respondent said:

*I have a cell-phone but in the place I am living only functions when in some specified places. In our place in most cases it is only one mobile company which is efficiently operating. Other three mobile companies the signal strength is very small and in most cases in inaccessible....If learning facilitator use cell-phone for sending a message there is a need to develop a computer system that would tell who received and read the message.* [Sego, a student from a rural place in Tanzania]

For ensuring that there are possibilities of using m-learning, networking infrastructure need to be addressed. Tanzania is a large country with no well developed cell-phone infrastructure. The cell-phone operating companies are privately owned and that each has its own network infrastructure. This makes some operator to have a well developed infrastructure as compared to others in some locations, making it possible to access information in one network operator and failing access in other networks. In that Sego proposes to have a computer system that determines who received and read the message. Though SMS is said to enhance learning experiences (Rooyen, 2010) using the ink-print-based materials in mobile phone segregates students with visual impairment. If information is recorded and stored in a server so that students would listen, it is likely to support many students including those with visual impairment. As Safi describes

*Of course mobile learning can be a good idea. But still if information is in ink-print-based I would not read. There is a need to provide audio information that can easily be listened. This would allow all students to learn at any place, anytime and increase participation and engagement in learning process* [Safi, an ODL student with visual impairment]

There are possibilities of using m-learning as many students own mobile phones in Tanzania. If we use the availability of opportunities that include students having mobile phones, having student mail server, and having developed materials, m-learning is likely to increase retention and completion rates. For example, m-learning has been applied to professional development of English teachers in Bangladesh (Shohel & Power, 2010) where learning resources were accessible through iPods. Teachers in Bangladesh saw m-learning as enhancing their learning and teaching as well, however Shohel and Power argue that it is under researched in the context of developing countries. Developing countries receive ICT equipment developed from other countries. There is a likelihood that equipments sold in Africa do not exactly consider African context and thus causing more challenges than solutions in delivering learning contents and maintaining them. Where ICT equipment are available and skills to synchronise so that they communicate, there is a possibility of increasing access to the learning contents. One of the ICT technicians said:

*We have a student mail server, if we manage to use mobile phones then it is possible for all students to receive learning materials through the Learning Management System developed* [Sobi, an ICT technician]

There are limitations in using m-learning. Where m-learning is used for teaching, audio tasks are easier to complete as compared to video and text. A text material takes longer time to complete. The delay in completing text tasks in mobile phone and challenges to using m-learning are multifaceted and do include: ‘lack of data input capability, low storage, low bandwidth, limited processor
speed, short battery life, lack of standardization, limited interoperability, compatibility issues, low screen resolution, small screen size, security issues, easy to lose, and cost of connectivity (Lokitt, 2005; Maniar, Bennett, Hand, & Allan, 2008). Many of the challenges are likely to be addressed except the size of the screen of the mobile phone devices. Similarly, there is no special training on how to effectively use the mobile phone for learning purposes. One of the respondents said:

*The phone screen is too small to view the text. I do not know how to enlarge text. There is no school that teaches how to use mobile phone in teaching and learning situation* [Kiko, ODL student]

Some of the respondents had a view that training on how to effectively use the m-learning equipment is important. This shows that most of the students who afford to have mobile phones have no idea that it could be used as a learning tool. There were those who had an opinion that mobile phone be installed with a software that translates text into audio.

*It is not very difficult to use phone but as a learning tool, training is necessary. Where possible special software might be installed so that is used to read big files. For ODL learners with visual impairment there should be software that translates ink-print-based learning resources into audio.* [Kaba, ODL student]

There were respondents who had a view that institutional awareness is important in ensuring m-learning is implemented. In one way if institutional leadership are positive toward implementing m-learning they are likely to increase retention and reduce dropout rates, minimise isolation among learners, and improve learning experiences of the ODL student (Louw, 2005). For increasing student interactions through technology, there are challenges that institution has to oversee in developing countries where economy of scale is low to government, institutions, and individuals. Most of the students in ODL cannot afford to access learning resources via their mobile phones as a result of high cost of using the internet, ability to connect the device to the available network and skills in using the device as a learning tool. In reducing cost of internet access, one administrator had a view that institutions negotiate with mobile phone operators to reduce tariffs.

*The institute of educational technology has started negotiations with one of the company toward reducing tariff when a student is accessing learning resources from OUT server.* [Zaidi, OUT Administrator]
Conclusion

In the developing countries context, m-learning, need more research toward how best to enhancing as there are challenges of infrastructure that affects connectivity and hence interactivity between the learners, the content, the technologist, the facilitators support and the learner-learner support. The issue of wireless infrastructure need to be addressed so that connectivity is assured anywhere and anytime. The computing capability of the mobile devices needs to be assessed so that students are correctly advised on the type of the equipment likely to support their learning. In most developing countries ICT is not part of school curriculum, efforts are to be made to ensure that students have basic ICT skills. For the case of OUT introduction to ICT is a compulsory course to all students.

As technology in education is said to pose new demands from the society, new ways of teaching and learning, and solves the current education problems that include drop-outs, provision of education to all, and transfer of learning (Jennings, 2005; Waton, 1996), each country be developed or developing is obliged to implement it. The current demand of flexible learning makes m-learning to be the viable means of ensuring access and retention of students. In developing countries where most countries are yet to educate all its citizens, when harnessed, m-learning has a positive effect toward provisions of education to all and professional development toward improving job performance. In both cases, research on how best m-learning is likely to support education for all as part of the millennium development goals (MDGs) in developing countries need to be addressed. The focus might be on skill development, content development, modality of delivery of learning contents, type of mobile phones, networking, type of wireless connections, and support services for learners using m-learning devices.
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Abstract
This paper investigates trends in education and technology that are affecting the U.S. higher education market. It draws on the findings of studies conducted by the corporate sector and the academia to explore policy implications for business schools in three areas: The effectiveness of online learning and blended approaches, conceptual frameworks and typologies of online education programs in the U.S., drivers of growth in the U.S. higher education market, and trends in learning technologies.

Keywords: Collaborative e-Learning; open source; SaaS model; effectiveness; LCMS

Introduction
The technological breakthroughs taking place in the global economy have produced important structural changes that have deep impact on education, school and business. The “digital shock”, although primarily a technological phenomenon, is part of a broader process of social change, characterized by the globalization of markets, the shifts towards an economy of knowledge, and the invasion of technological devices into everyday life.

In a recent study released by the Joint Research Center of the European Union (2010), researchers looked at some of the major shifts taking place in the global economy that will affect education in the next twenty years using a methodology called group mapping concept (GMC). In this methodology, researchers gathered more than twenty leading educational experts from Europe and the U.S. and asked them to elaborate on statements that described what the researchers thought would happen to education in 2025. After a careful analysis, researchers identified a set of clusters that represent the major shifts that will affect education in 2025. These clusters were technology in education, tools and services enhancing learning, open education, accreditation and qualification, and globalization. Not surprisingly the cluster of technology and education emerged as the most important one. With a standard deviation of 0.08, all experts agreed that technology will play a major role in education with virtual learning becoming an important vehicle to training, education and knowledge delivery.

In this paper we would like to explore the cluster of technology and education. More specifically, we would like to explore changes that are affecting e-Learning and virtual learning. We will focus on the conceptual framework and typologies offered by researchers in the U.S., trends in higher education market, the effectiveness of e-Learning programs, and the trends affecting learning technologies.

Conceptual Framework: What is e-Learning?
Although definitions of e-Learning vary from one researcher to another, e-Learning generally refers to the introduction of
technology and web-based applications to deliver instructional content over the internet or the intranet. Online courses, defined as courses that have at least 30 percent of content delivered online, could be also combined with face-to-face instruction. Blended learning, a new emerging trend in e-Learning is also gaining some attention and interest from educational institutions as it allows them to combine distance education with face-to-face instruction to enhance learning and support students’ pedagogical activities. Allen and Seaman (2008), offer a typology of online courses that make out of the content put online a criterion of distinction. According to their framework, online courses fall under three categories:

- Web-facilitated courses with 1 to 29 percent of content put online;
- Blended/hybrid courses with 30 to 79 percent content delivered online and in a face-to-face format;
- Online courses with 80 to 100 percent of content delivered online.

Interest in online education could be explained by the many advantages it provides to educational institutions and training organizations. These advantages turn around four key themes: flexibility, access, deployment, and cost.

- Flexibility: e-Learning provides learners with a tremendous advantage that allows them to learn the content they are interested at their own pace and according to their own schedule.
- Access: e-Learning allows access to knowledge and other pedagogical resources available on the Internet. It allows universities, research centers and libraries to share and open their databases so learners can have access to a wealth of information regardless of the geographical distance.
- Deployment: e-Learning in the corporate sector allows rapid deployment of training programs. Companies with large sales’ force requiring technical and compliance training find in e-Learning a practical tool that delivers timely content regardless of where the employees are located.
- Cost saving: e-Learning allows organizations to achieve enormous cost saving. The elimination of the expenses and the inconvenience of getting learners and instructors at the same place adds tremendous efficiencies to training budgets. For public policies, e-Learning allows governments to provide education to remote geographical areas, where investment in educational infrastructure is high.

Finally, e-Learning allows employees, in search of long life training, to enhance their competencies and retool their skills to improve their employability.

Furthermore, and in corporate training, evidence suggests that e-learning has an impact on the improvement of employees’ performance. In a study conducted by Hall and LeCavalier (2000), more than 5000 employees were surveyed in the following eleven companies: Cisco Systems, Dell Computers, IBM, Ernst & Young, the U.S. Internal Revenue Service, and the U.S. Navy. The findings of this study revealed tremendous impact on the alignment of employees with e-business strategy, better management of the company’s competencies by the leadership, and an easy infusion of an e-culture that made the organization ready for change. Cisco systems, for instance, reported an "increased productivity and reduction in support of tools, improved efficiencies while using business tools, and increased workloads, while requiring fewer people" (p. 9). The study also reported a substantial gain
in training new employees in manufacturing. "The time to get someone up to speed in a manufacturing facility has gone from three months to about four weeks" (p. 9).

Online learning is a relatively new pedagogical phenomenon. It includes a variety of activities that span a large spectrum of complexities. For instance, a student can learn by reading content from a digital device, a cognitively less demanding task, and can learn by participating in an online multiplayer simulation game, a cognitively high demanding task. It is therefore important for content developers to understand the type of learning, the nature of tasks and the means of communication involved in the learning activity.

One framework that we can use is the one offered by Means, Toyama, Murphy, Bakia, and Jones (2009). In this framework, the authors argue that for courses to be effective, designers have to ask three key questions:

- Whether the learning activity encourage active learning, interactive learning or simply expose students to learning (expository).
- Whether the communication between the learner and the instructor is synchronous or asynchronous (synchronicity).
- Whether the learning activity is meant to replace or to enhance the face-to-face instruction. See figure 1.

The U.S. Higher Education Market: Shifts to Online and Blended Learning

The U.S. higher education online market in the recent years has seen an explosion in online education. According to Allen & Seaman (2008), the U.S. higher education market grew by 12 percent in the last ten years. 69 percent of leaders of academic institutions believe that the demand on online courses will grow in the future, while 83 percent of institutions that already offer online courses consider that the growth will be tremendous. The majority of this growth comes from large institutions that have a clear engagement strategy in online education, with undergraduate education taking the largest share of students learning. These institutions see competition for students in online programs and courses as the driving force growth in the online education market. A variety of disciplines are offered that include online business education, liberal arts, health profession and education.

However, and in spite of this growth, it is important to note that not all U.S. higher education institutions have the same perception of online education. While certain institutions have adopted online education as a growth strategy, others have adopted online education only to maintain a symbolic presence in the market. The study conducted by Allen and Seaman identified four groups of players in the U.S. higher education market:

- Institutions that are fully engaged. 35 percent of all higher education institutions believe that online offering is important to their growth and have included this as part of their strategy. These institutions educate 43 percent of the total higher education population.
- Institutions that are engaged and believe that online education is critical to their long term strategy. These institutions represent 23 percent of all higher education institutions in the United States. Faculty in this group holds positive opinion about online education and plan to make a transition where online education becomes part of their strategic plan.
- Institutions that believe that online education is not a strategic fit for their population but do offer few online courses to maintain a symbolic presence in the online education...
market. These institutions represent 23 percent of all higher education institutions.

- Institutions that are not interested in online education and do not have any online offering. These institutions are small and educate about 5.5 percent of all U.S. higher education population. They do not believe that online education is important to their overall strategy.

There are three main reasons that explain the surge in online education in the U.S.:

The first one relates to the size of the U.S. education market. With 76 million people that include four educational segments, childcare, K-12 education, higher education, and corporate training, the U.S. education market is more than 700 billion industry. Over the period from 1985 to 1999, total higher education enrollment grew by 12.5 per cent to $14.9 billion. This growth made this market an opportunity for private and public institutions to diversify their offerings in order to compete for students.

The second explanation relate to the active role of the U.S. federal government. Since 2000, the U.S. government launched a variety of initiatives that were designed to help educational institutions take advantage of technological advances. The most important one is the initiative that allows the use of financial aid in distance education programs, and lifts all restrictions on financial aid for learners enrolled in an online program. The Learning Anytime Anywhere Program initiative also is an important one as it provides grants to universities and colleges that have initiated an internet learning project. These two projects are an example of the active role of the federal government in helping U.S. educational institutions develop programs that are students’ paced in order to allow learners more access to higher education without being penalized by the semester system.

The third explanation of the surge in online education relates to the cultural change that is brought by the digital natives. Young students, born in the internet age, have been a driving force in pushing universities to adopt new online curriculum.

**The Effectiveness of Online Education Programs**

The fundamental question facing the growth of e-Learning and online programs in its early developmental stages has been the effectiveness of learning. Policy makers and faculty members in traditional higher education institutions have always approached e-Learning with apprehensions. For some, e-Learning does not add any value to learning, while for others, e-Learning takes away the control of the learning process, a notion that is the core of the teacher’s identity.

However and in recent years, the evolution of learning technologies and the entrance to the higher education market of a new generation of learners that are well versed in multimedia and internet applications, have changed the perception of online education. Improvement in pedagogical approaches and teachers’ training have also allowed e-Learning to gain an acceptance among different stakeholders. The effectiveness of online education programs seems to be now more of a question of implementation rather than a philosophical question. Researchers seem to agree that online education, when executed well, has the potential to deliver product that are as good as the product delivered by traditional universities.

Means et al. (2009), in their meta-analysis study of major research conducted in the U.S. between 1996 and 2008, argue that “in recent experimental and quasi-experimental studies contrasting blends of online and face-to-face instruction with conventional face-to-face
classes, blended instruction has been more effective, providing a rationale for the effort required to design and implement blended approaches. Even when used by itself, online learning appears to offer a modest advantage over conventional classroom instruction" (p. 19). The study concluded with three important findings:

- Students who took all or part of their class online performed better than those taking the same course through traditional face-to-face instruction.
- Instruction combining online and face-to-face elements had larger advantage relative to the quality of face-to-face instructions that did poorly online instruction.
- Studies in which learner in the online condition spent more time on tasks than students in face-to-face condition found a greater benefit for online learning.

Managing IT alignment strategies in higher education: Best Practices

How do universities design and plan the introduction of information technologies in their campuses? How do they align their teaching and research mission with IT strategy? According to the research published by the Educational Center for Applied Research (ECAR), the introduction of technology in higher education is a complex issue. It requires the bundling of several factors that can be summarized as follow:

- A well articulated vision and priorities set by top leaders: University president, provosts, and deans play a major role in setting up the tone. Resistance to technology changes by faculty could be the most damaging barrier. Without top leaders’ engagement, faculty and instructors can be an obstacle to technology.
- Institutional planning plays a major role in synchronizing the priorities of different stakeholders. It allows also for a better resources allocation.
- A stable but dynamic environment allows for adaptive and incremental changes. Brutal and highly volatile change can be a risk to technology alignment.
- Stakeholders are engaged in technology alignment and see the value added of technology. Internal stakeholders include deans, heads of department, teachers, researchers, and staff members.

Trends in e-Learning: Open Source Platform, SaaS Model and Social Media

Open Source Platforms

The open source model, once a marginalized movement in the IT community, is now gaining an important market share in the U.S. and elsewhere. Moodle, as a Learning Content Management System (LCMS), a
platform that is well known in the academic world, has imposed itself as reliable software that delivers reliable learning services to organizations. At the University of Minnesota, the adoption of Moodle as a learning management system for online and blended courses has been phenomenal. Courses put on Moodle went from 70 courses in 2006 to 1743 course in 2009. Worldwide, Moodle has about 32 million users with almost 4 million courses that offer content in more than 75 languages. Moodle now is registered in 211 countries. There are many advantages to adopting an open source system to e-Learning. These advantages turn around three core ideas: customization, cost, and stability.

- Customization has become an important issue in LMS as more and more organizations seek ways to differentiate themselves from the competition. The ability of an open source application to adapt particular conditions of the organization has become a competitive feature. For instance, Moodle offers a variety of options that allow organizations to adjust the “look and the feel” of the platform.

- The second advantage is related to the cost. Open source software are available for free download. In Moodle for instance, there is no cost to buy or rent the application. The only cost a user has to pay is the cost of hosting the application and the support that the institution has to provide to its users.

- The third advantage relate to the stability and control of the direction of the application. Open source applications, because they are adopted by a wide range of users, are more stable than proprietary applications, particularly applications made by companies with small market share.

The risk of a company changing strategic directions, being taken over by a competitor, or simply going out of business, is always high. When this happens, clients and users are left with tremendous financial damage. Furthermore, open source applications benefit from the review of a large number of adopters and contributors, who have access to the code. New versions are released based on users’ feedback and technical advice of contributors rather than financial consideration as it is the case in proprietary applications.

SaaS Model

While most of large companies have opted for building their own LMS and installing it on their own servers, many companies, small and medium, are shifting to the leasing of the LMS platform. Known as SaaS, this model allows companies to rent e-Learning services from a hosting company that delivers e-Learning applications to multiple tenants over the internet from a remote data center. The objective of such strategy for the company client is to leverage quickly new advances in technology without the burden of making big investment. In a relatively short period, the SaaS model has imposed itself as a solution that is highly agile. Many companies find in its configurability a reason that allows them to adapt the leased LMS to their specific organizational constraints.

There are a lot of reasons that explain the interest of organizations in this new model of learning. The most critical one is the ability of the company to lower tremendously the Total Cost Ownership (TCO) and increasing the return on investment made on the application (ROI). The saving a company can achieve on direct cost and resources are tremendous when compared with a client-server solution. Other reasons that relate to the speed of deployment and the comparative advantage
achieved when the IT “headache” is outsourced to a specialized provider, explain also very well the interest of academic institutions and corporate training programs in the SaaS model. IDC, a market intelligence firm that focuses on technology, predicts that global SaaS market will grow to 19.3 billion by 2011 tripling in size from 2006.

Social Media
Defined broadly, the term social media refers to web 2.0 technologies that have emerged since 2005. Compared to previous applications, these new technologies provide users with more control over the content. Web 2.0 applications allow users to share, edit and change content. The term has acquired certain popularity among young users in recent years because it provides them with high degree of interactivity. Examples of these technologies include social networks such as LinkedIn and Facebook, folksonomie sites such as flickr, collaboration sites such as Wikipedia, and file sharing such as YouTube.

In a recent study released by the American Society for Training and Development, a leading organization for professionals in corporate training, ASTD found that more than 52 percent of U.S. employees use social media in the workplace. While certain employees use it to learn in less time, other use it to learn more things that are useful to the work. The study has also showed that employees use social media to find and locate resources more easily and to improve knowledge sharing and collaboration among employees.

Training and development: Industry trends

In spite of the difficult times that are due to the financial crisis and the economic recession, U.S. companies have not cut on their training and development expenses. In 2008, U.S. organization spent 134.07 billion on employees learning and development with companies spending, on average, 1,064 USD per employee per year up from 800 USD from 2001. Employees in U.S. firms spend an average of 36 hours in 2008 up from 25 hours per year in 2001. 70% of companies offer training in new employee orientation, leadership training, sexual harassment training, training in product knowledge and equipment operation, safety training, and training related to problem-solving and team-building with large employers and companies in the transportation, communications and public utilities industries spend the most on training, learning and development.

Trends for e-Learning in the corporate market have been extremley positive for employees. The percentage of technology-based learning, a category that encompasses all sort of learning that is mediated by technology, increased from 11.5% in 2001 to 31%.4 in 2008 (ASTD 2009).
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Abstract

The PREA2K30 project (http://prea2k30.risc.cnrs.fr/) is a prospective reflection workshop supported by the French national agency for research (ANR, http://www.agence-nationale-recherche.fr/). This one-year action aims to identify and precise main issues for the next twenty years concerning knowledge and key tools for learning and teaching taking into account economical, industrial and social dimensions. More concretely, the workshop aims at producing groups of scenarios helping ANR to launch new research streams.

The work method is based on mobilization of varied perspectives (research, enterprise, actors) and multiple and complementary disciplinary expertise’s (cognitive science, didactics, sociology, educational sciences, psychology, ergonomics, virtual reality, computer science…).

STEF (École normale supérieure de Cachan) is leading the working group 2 about curricula, formal and non formal learning contexts, teaching modalities. Its objective is to include in the prospective reflection a set of issues concerning ways of elaboration, diffusion and transmission (or co-construction) of knowledge, related to instrumentation evolution and organizational ways and contexts for teaching and learning evolutions, putting points of view of institutions, stake holders and “educators” into perspective. It draws the attention in particular on the considerable issues linked with how new and instable knowledge may be converted into curricula.

The presentation will provide an overview of the PREA2K30 project and focus on working group 2 issues.

Keywords: Prospective, learning in 2030, education, learning tools, ICT.

Introduction

As we remarked in a preceding text (Bruillard & Baron, 2010), drawing a picture of what might be the future of education is both a necessity and a very risky exercise. In a period of rapid social change, with a large consensus on the fact that educational systems have to evolve, many books and reports have published what should be done (for example, Trilling & Fadel, 2009; Collins & Halverson, 2009).

The year 2020 seems to have been an inspiring horizon, since many reports have tried to imagine what would happen at that time: Visions 2020: “Transforming Education and Training Through Advanced Technologies”, a collection of expert visions, completed by a second one (Visions 2020.2,
see Bajcsy 2002; 2004), the student visions. In this latter report focusing on the role of “advanced technologies”, (Bajcsy, 2004) has identified 4 main themes:

- Digital devices, becoming more and more what Don Norman (1998) has termed “information appliances”, handheld, wireless…
- Access to computers and the internet (widely available high speed kid-friendly access)
- Intelligent tutors / helpers
- Ways of learning and completing schoolwork using technology (serious games, interactive e-textbooks, virtual reality environments…)


A quick comparison of prospective reports reveals many similarities, and notably: a growing role for ICT technology, the necessity of life-long learning and the idea that education will be available everywhere for everyone. But some important differences may be remarked. One of them concerns the group or institution responsible for the prospective study, the persons in charge of the study, the purpose or underlying objective, the adopted method, the dimensions, which are taken into account…

For example, computers and software producers have sponsored a series of works focused on new technology and how its use does impact education. Other works mainly correspond to expert visions (focus groups, interviews); others include different populations (students, teachers, parents, administrators for schools, companies, politicians…). Their objective has often been to produce scenarios, with different purposes: inspiring new policies, organizing debates, orienting research tracks… they can be limited to a region, a country, a continent or the whole world…

For example, the FutLearn project (“The Future of Learning: New Ways to Learn New Skills for Future Jobs”) has been launched in May 2009 for 18 months by the European Commission. The horizon is 2020, with a particular focus on: “Emerging skills and competences associated with societal changes; New ways of acquiring knowledge and skills; Changing roles of teachers/trainers and learners; Implications for educational institutions; the role of information and communication technologies”. The outcome consists in “Visions on the future of learning, outlining the characteristic features of European Learning Spaces in 2020 and highlighting important and critical trends” (Stoyanov & al., 2010).

Of course, the outcome of these works often has an imminent expiration date. Still, these exercises are not useless: reflecting about possible scenarios helps to some extent in dealing with the fore coming surprises that the future has in store for us.

We have been reflecting for a while on these issues and have done in the past several partial prospective exercises. In this text, we first present the PREA2K30 project. The specificity of this project is that the prospective about education has a clear objective: to launch research programs. It will use some prospective methodology, will focus on France including larger visions, and take into account several dimensions (tools, jobs, inclusion, institutions, knowledge and curriculum). As it is an ongoing project, we cannot give any firm results, since general orientations are still under discussion. But we shall present its main working directions and discuss some issues linked to the emergence of new tools and social practices and more in-
depth issues concerning knowledge and curricula.

The PREA2K30 Project: An Exercise of Prospective, with Research as a Central Perspective

The PREA2K30 project (http://prea2k30.risc.cnrs.fr/) is a prospective reflection workshop supported by the French national agency for research (ANR, http://www.agence-nationale-recherche.fr/). This one-year action aims to identify and precise main issues for the next twenty years concerning knowledge and key tools for learning and teaching taking into account economical, industrial and social dimensions. More concretely, the workshop aims at producing groups of scenarios helping ANR to launch new research streams.

The choice of the word PREA2K30 is interesting. Literary speaking, it means ready for 2030 (prêt à 2030), with the use of K for thousand, sort of glimpse of teenagers culture. It is also a single word and unusual, so it is very easy to find the website of the project via a search engine as far as you remember its name.

In this project, the reflection about learning is multi-disciplinary because various and complementary perspectives are in order if we want to correctly take into account what is emerging and the possibilities of ruptures: life-long learning social models, cognition perspectives, didactics, philosophy, ergonomics, software engineering, virtual reality…

Three main phases have been defined:

- Identifying and sharing current main issues about learning at every age of life and its different modalities (traditional, alternatives, even emerging)
- Design of scenarios which will be the achievement of exchange and synthesis work, including interdisciplinary thematic workshops with interviews of experts
- Common discussion about proposed scenarios, with identification of breaking points and main research related issues

Four major themes have been selected:

- Cognition, learning process, learning assessment
- Curricula, formal and non-formal learning contexts, teaching modalities
- New resources, new instruments
- Evolution of working and learning constraints and how take into account diversity

Two transversal themes cross this four issues: (a) compulsory initial education vs. life-long learning and (b) institutional frameworks for teaching and learning. Several partners, research laboratories and specialists associations, are involved: Paris Descartes university, Paris 8, Toulouse, French associations of virtual reality (AFRV, http://www.afrv.fr/) and of ICT in education (ATIEF, http://atief.imag.fr/)…

The method we chose has be to start from a study of changes in the past 20 years, and possible breakthroughs in the next 20 years. One of the first main tasks was to elaborate a shared initial vision and to try to spot tendencies and possible ruptures. Starting from a state of the art, a series of variables has been chosen and validated in a kick-off seminar, held in June 2010. The results of the meeting will shortly be made public. Another workshop will take place during the first week of March 2011 with the idea of sharing findings and discussing research implications of possible scenarios with experts (those who were invited in June, others who have been interviewed and some others who were not involved in the process).

Now, relying on this conceptual framework, the main task is to design possible scenarios.
In order to attain this goal, a series of interviews with experts have been organized, inviting them to share their visions of the future in their field of specialty. In the rest of this text, we are going to present our specific work done so far by the grouping charge of the second theme.

**Curricula, Formal and non-Formal Learning Contexts, Teaching Modalities**

This theme is being studied by a group led by François-Xavier Bernard (EDA) and Eric Bruillard (STEF), with Virginie Albe (STEF), Maryline Coquidé (STEF) and Michaël Huchette (STEF). Its goal is to take into account issues about construction, diffusion and transmission (or co-construction) of knowledge, with evolution of technical instrumentation, organisational arrangements, teaching and learning contexts putting in perspective points of view of institutions, prescription agents and educators.

In French language, two different words correspond to knowledge: savoir and connaissance. The first one refers to a social construction that has been written and validated in a specific community (most of the time a scientific community). The other one is more internal to each person, but can be shared by group of persons. It is not necessarily written down. So, we are interested in the way savoir is elaborated and how institutions and persons help to transform it in connaissances or how people acquire some connaissances and the relationship between these connaissances et the savoir.

We are aware of the fact that what we learn now may not be useful, in 2030. In many subjects, we have a limited and uncertain knowledge and the conception of what science is has evolved in our post-modern world: science is no longer a corpus of validated (stamped) results but a capacity to project oneself. New curricula have to take into account these issues.

More precisely, four directions have been selected.

**Constructing and Distributing Knowledge, Relationship with Social Issues**

Studying the construction of knowledge itself, before reflecting about what has to be transmitted (taught or learned), consists in studying the diversity of "sources" of knowledge production and their relative weight, how they are controlled, selected and / or integrated at various levels (from the local to worldwide).

In particular, we think that issues relative to science, dissemination and mediation should be considered: how different social groups do apprehend science and technology, the terms of debate that are established, issues of knowledge they imply, etc. We specifically interest ourselves in information research, which has substantially changed by the deployment of Internet and will face other changes with the announced development of the Internet of Things. The control of information at different levels, their qualifications, history of their construction will be investigated.

**Knowledge and Transmission: Curriculum**

The second theme of our working group focuses on the evolution and transformation of curricula, both in style as in content. It will address the issue of the knowledge to pass on to students - design, implementation and development - as well as its transmission from the point of view of the instruments used and the intervention methods mobilized by educators (teachers, mediators, etc.).

First, we are focusing on the definition of curriculum, knowledge and skills to acquire and develop, especially given the present and future socio-technical, economic but also ideological and political movements. By extension, we try to understand the possible changes and mutations of school subjects in education. The gender issue will also be dealt
with in particular a review of changing discourses and practices concerning the place of girls, particularly in science.

Second point, we will focus on the one hand on the design of resources for education and training (textbooks and extracurricular activities, websites, learning objects, television programs...) and, on the other hand, on the posture of teachers as they are facing new forms of access to knowledge, transmission of knowledge and validation. We will examine issues of practical and digital cultures among different actors of the educational landscape (digital literacy, digital fluency) and their possible developments in the future.

One key point is the amazing spread of digital technologies in objects and in our environment. As quoted in a FutureLab publication: “By 2020, digital technology is embedded and distributed in most objects. All personal artifacts – your keys, clothes, shoes, notebook, newspaper – have devices embedded within them which can communicate with each other. As a result, we will interact with these technologies in ways which are more seamlessly and invisibly integrated into normal activities”. (FutureLab, 2007, p. 6).

Internet of objects, ambient intelligence, context-aware computing is continuously appearing. With these new devices, everywhere, a new interaction space may open, which may also be a learning space. With the articulation of physical objects and virtual objects, we can go beyond the classical opposition between the “real world” and the books. Ubiquitous computing allows to link information with physical objects and the informatized world becomes its own library.

**Institutions related to education / partnerships, turns between workplace and educational institutes**

We are interested in forms and roles of public and private institutions of education and training, research organizations, enterprises: methods of regulation by institutions, training of teachers and trainers or educators more broadly; modalities of association between educational institutions and other associative structures and institutions outside the school.

A crucial issue is evaluation. We are going to analyze the way in which policies and evaluations of accountability have changed the educational landscape: the design of assessment instruments has significant effect on education.

We shall also focus on the question of alternation, succession of training periods and work in different locations (workplace and educational institutes). The juxtaposition of school time and working time poses the problem of the related prior learning and different orders of consistency for the content of this learning across a curriculum. What new connections between school situations and work situations can be imagined? What new forms of collaboration and what needs training for teachers, tutors and teachers learning?

**Teaching and Learning Methods According to Different Public and Different Contexts**

The last theme deals with the contexts and ways of teaching, and more generally, knowledge dissemination and implementation of education-oriented activities. Any education process can take three different forms (UNESCO, 2006): formal (i.e. within school), nonformal (outside school) or parallel (also known as incidental, occasional, diffuse, spontaneous, informal…), the latter involving unstructured training activities. These different forms of education are accompanied by alternative means of transmission of knowledge by enrolling in non-institutional, recreation (such as science museums, for example), voluntary or family (Home Schooling).

All these issues are currently discussed and interviews with experts provide very
interesting hints and sometimes new ways for setting the problems encountered. We will know propose a brief summary of general tendencies that seems to emerge and focus on some ideas concerning knowledge itself, often left out in essays about future of learning.

Some General Observations: What is at Stake

The Spread of Life-Long Learning

It is rather well established that career paths will be more diverse and that people will change their "business" several times during their career. People certainly will alternate periods of work and period of training, and need to master a reflexive process, in order to be able to pilot their own path. We shall then have to reason about personal itineraries or career paths, and not so much about educational streams or courses. Consequently, identity issues will be closely linked to teaching and learning questions and experience appears to be a key notion, learning or working experience, experience as an accumulation or an appropriation.

People will also have to constantly adapt to a world of rapid technological change, causing problems of understanding and mastery of technological devices available (domestic robots, home automation, medical implants, etc.).

Another point is linked with the growing importance of standards and norms, and competences, the so-called 21st century skills according to Trilling & Fadel (2009). New jobs are not known, but we can have an idea of the combination of competences that will be required.

Universal Quantification of Human and Social Activities

A really important tendency is the multiplication of numerical indices concerning every kind of human activities, allowing benchmarking and liable to rule many human activities. The increased use of international evaluations (as PISA) as a base to change educational policy in a country is a well-known example.

Teaching as a profession will certainly change, but how? Are we going towards an increasing level of autonomy for teachers or, at the opposite, towards a dwindling set of responsibilities, (evaluation, for example, being largely external) and a growing dependence upon headmasters? Or perhaps, teachers will have to work in a more collective (cooperative or collaborative) way? Will we see an increasing use of national tests to regulate teaching and learning processes? The same questions may be asked about the different models of educational research: medical and engineering models for research (mainly evidence based) can be opposed to Learning Research as a Human Science, with a new importance attached to approaches like design research (Edelson, 2002). Important debates will take place and the very different visions of research and teaching profession and their possible relationships have an impact on the way we imagine possible future.

Personalization and Individualization

New ICT technology offers an opportunity for competent learners to take control and manage their own learning process: Personal learning environment (see wiki Edutech of Geneva University or Wikipedia in French or in English). But it is not clear which learners will be able to do that and how to develop sufficient autonomy and skills for them to beneficiate of personal learning environments. Concerning learners, digital natives or new millennium learners, certainly display new practices, but lack new competences and knowledge that the school has the responsibility to offer them (Baron & Bruillard, 2009).

A tension is worth noticing: between the personalization of environments, adapted to the specific needs of each learner (often
quoted as a major contribution of ICT), and the necessity to work together in a collective way with the same objects. Such an opposition questions the classical modalities of schooling: a very individualized teaching is hardly compatible with an organization based on groups, even more when financial supports have to be reduced.

**End of the Traditional Model of Schooling?**

As pointed many times now, promises of technology have so far had little impact on schools. According to a recent book published by OECD (2010), there is a need to balance the expectations of the power of technology with the reality of what is feasible (Johannessen & Pedró, 2010). However, are not powerful changes going on?

Selwyn (2010) offers a critical perspective to the emergence of Web 2.0 applications. He points out that one of the drivers of attention seems to be actors with a deschooling agenda. Different experts are predicting an end more or less close, at least a disruptive evolution of the current model of schooling (see Collins & Halverson, 2009; Christensen et al., 2008).

To summarize the main arguments, the current model is that of industrial society and mass training, aimed at educating citizens and workers. The elements of youth culture appear in opposition to the school cultures, inducing factors of failure. These phenomena associated with technology offerings growing commercialization of education contribute to a breakdown of education systems. Increasing personalization and individualization required massive use of computers; otherwise it will be too costly. But, our school system cannot really integrate computers, so new offers will grow.

Without deciding the pace of change and the outcome, it appears that what is between the school and the workplace plays a key role and will probably be at the heart of the changes. Thus, the French university has lived major reforms. In this context, the upstream link with the school links below or more intertwined with business, they change how the training or continued (and now throughout life) is part of the landscape are to be investigated. Concerning initial training, the importance of the issue of choice of contents is increasing. In a particular context of new and available knowledge explosion, the key issue seems to identify basic knowledge or fundamentals to teach and to learn. One another issue is the duration length between an innovation and its teaching at graduate level (for example in automobile industry).

As we have previously noticed, a question is left out: that of knowledge. Dispute between the knowledge and those methods or pedagogy, it is not really the debate. Too much knowledge, what reorganization of disciplines, what rights, how are they formed?

**Which Fundamentals?**

ENS de Cachan (École normale supérieure de Cachan) has a historic responsibility in training teachers for the school environment and teacher training at university. It projects and must reflect on its future. So it seemed potentially useful and productive to gather the thoughts of the various components of research and training of school and try to put them in perspective. That's what we are doing. Interviews with leaders at ENS Cachan helped us to identify 5 important issues.

1. The first one is an educative issue. We have to help youngsters to become responsible citizens in front of technologies among which they are immerged. Twenty years ago, robots and other automatic functioning were mainly designed for industrial applications; these technologies have been adapted for the general public: home automation, transportation, etc. In industry, you could count on the competencies of the operator to prevent the risks inherent in the use of these machines because they were
trained in their use and maintenance. Distributed to the general public, these technologies have been adapted and are entrusted less risk management to the user. The new standards on the same products tend to regard the user as naive and ignorant and it is the system itself must be secure in all use cases. But taken to its extreme, this trend is highly questionable because it removes responsibility from users, citizens. We can instead think they should be aware of the risks for themselves, for others and the environment. But what knowledge is needed for this: Knowledge about the functioning of system; about the phenomena involved in their operation; on their components and their harmful?

2. The second issue is related to the necessarily prospective nature of education and initial training as they relate to young people who will become adults in the medium term and will live in a different world in the long term, particularly as technology evolves very quickly. What knowledge will be useful for long in a changing world? Can we find a stable basic knowledge that would still be valid? Concerning technology degree course, such stable knowledge can be the more theoretical and abstract one that is to say knowledge of phenomena and models, the most difficult to access.

3. The third issue is strategic. What model of society do we want for the future? What model of civilization? According to the answer that the society gives to this issue, some educational content are strategic and should be favored. For example today we see the technological limitations that prevent the development of electric cars for everyone. On the one hand, the miniaturization of electric motors through the development of new magnetic materials with a greater masse performance than those that exist today, and research on magnetic materials are needed. On the other hand, the storage technologies of electric power today are unsuitable for normal use of the automobile and require research in the field of electrochemistry. Consider that the electric car is an issue, means that materials science and electrochemistry research areas are preferred and are the priority fields of knowledge in the engineering curriculum and research.

4. The world for which we prepare young people is increasingly complex. Understanding this world and becoming an actor requires to appeal to different kinds of knowledge, make connections between this knowledge and to communicate with people having different cultures and knowledge. For example, taking into account issues of human and Sustainable Development in the development of communication technologies is also to take into account the electrical effects of radiation on living organisms, and it involves simultaneous knowledge in the electronics field and in the field of biology. Also in the fields of automotive and aerospace advances, predicting the future behavior of technical systems requires establishing couplings in the models. Thus, in a car brake, thermal phenomena (heating of disks) and friction phenomena interact. Detailed and realistic prediction of behavior requires coupling a thermal model and a rheological modeling. In both cases, the challenge is not to educate
generalists but to train people such as sharp electronics and sharp biologists which can work together and operate together their respective models.

5. The fifth issue is the efficiency of business practices using digital technologies, particularly software applications that are evolving very quickly with the power of computers. For example, research is developing tools for simulating the behavior of technical systems for product designers, they are simplified, made user friendly by companies that market them. This way, they are less transparent and less customizable. They are distributed and used by many industrial designers, but often with little relevance. Indeed the intelligence of these simulation tools and interpretation of results require theoretical assumptions and limits of validity of scientific models on which are based these simulations. The big risk is to blindly trust the software application.

**Individualizing Learning Courses?**

There are in France a large number of elective courses, and they are changing with the successive reforms. This results in a lack of clarity of the system for students who have to make career choices and for educational officials who must take into account pupils' achievements in the design of the training offer. The profiles of students are increasingly diverse, and it is also accentuated because the modes of individual access to knowledge are increasing: Field Placement or temporary employment, digital environments (Internet, virtual reality...) etc. In this context, can we still think about "student classes"? What means do we give to students to navigate the educational system, understand the contents of the training issues and make policy choices knowingly? What means shall be available for objectifying the individual skills of each student in order to adapt the individual training offer? In a set of efficiency, how to solve the dilemma of providing individualized training and support of many? Under what conditions can we even standardize the content? Solutions are emerging at the ENS Cachan: for specialty engineering, the first year of training (Bachelor Degree = L3) at the ENS must become a core curriculum that allows students time to discover the various specialties of engineering to make an educated choice. The stakes of the different disciplinary knowledge are presented to students through projects conducted in small groups. An assessment of student skills will be put in place: assessment of prior learning (pretest), coupled to a self-paced "run" of the knowledge needed to enter training, and a validation of credits based on the skills displayed, and not on the basis of training hours.
Conclusion

In this short text, we have focused on a small number of the issues we are discussing in our project, leaving out the case of digital learning resources. Concerning educational institutions, there is a general tendency to focus on offering services with an increasing accountability. Main educational publishers are not used to do that. An interesting trend is linked with free and open resources, developed not by official institutions but by associations of practitioners, with new economical model (Elie, 2009; OECD, 2010). Another key point is the important diffusion of simulation. In some professional fields (medicine, aeronautics…) simulation is already an unavoidable basis for training. For example, in emergency context in medicine, it is not possible to follow the classical training model: (1) knowledge acquisition and (2) clinical experience. Vital emergency does not fit teaching! So, it is crucial to create realistic simulations for learning. Furthermore, when new instruments or devices are announced, it is not always possible to train or to educate people before the arrival of these new devices. Simulation and serious games will play a growing role in many operational fields as medicine. But it appears that use of simulation, without an access and an understanding of model beneath, can have some consequences to explore.

To conclude, we hope to be able to share some on-going reflections during the 4th eLearning Conference HBMeU at Hamdan Bin Mohammed e-University and invite for comments. Before elaborating scenarios, it would be interesting to compare what has been noticed in a western country like France with what happens in other advanced countries.
References


Maintaining Contact: Informal Learning through Long Distance Social Network

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Abstract
While undertaking higher degree study in Australia, the first author, Shamma Al Naqbi, used a variety of social networking tools to maintain contact with her students in Ras Al Khaimah. Although on leave from teaching, Shamma used the informal setting of these tools to engage her students in developing English language skills with her stories of life and times in Australia. The use of technologies in this informal setting replicated some of the practices that the students were used to as part of their studies at the Higher Colleges of Technology in Ras Al Khaimah but was different due to the intentionality of the educational experience. The significance of this project was its informal and non assessed nature. Students freely and regularly interacted with their teacher and a new collegial relationship was formed. The project is an example of how communities of practice can flourish in informal settings, and how formalised language learning can be supported through these technologies. It presents a practical application of how technologies can shift pedagogical paradigms and support real learning.

Keywords: Social networks, informal learning, community of practice, English language

Introduction
In January 2009, the first author, Shamma Al Naqbi, made the long trip from Ras Al Khaimah, UAE, to Melbourne, Australia to undertake a twelve month Master of TESOL degree at the University of Melbourne. As faculty at the Ras Al Khaimah Women’s College, Higher Colleges of Technology, she was leaving behind a group of her own students; students she had really only known for some six months. As an educator keenly interested in the ongoing education of her students (even in her absence) and as a communicator interested in sharing her journey, she created an online presence using email, Netlog and Facebook. This paper presents the nature of the communications and how they engendered a deep level of learning and discussion (in English) between the teacher and her students, and between the students themselves. It shows how informal social networking tools can be used to create and support a community of learners and how informal learning can be a powerful tool for educators.

Literature
Social network tools such as Facebook and Netlog have shown how successful online tools can be in establishing and maintaining online communities. Websites like Wikipedia have become what Lave and Wenger (Lave & Wenger, 1991; Wenger, 1998) refer to as reifications of a community of practice. In
In this case the community is made up of millions of users and contributors across the world and the reified object is Wikipedia itself (the community exists around the site but the site is a ‘physical’ representation of that community). In the current project the community is made up of only a small group of individuals and the developing social networks that were established did not become that reified object, rather a record of the interactions that took place. Facebook use is reported as being in the millions and while many education institutions (and workplaces) struggle with the notion of allowing Facebook into the school or workplace (Bullas, 2010; Masseni, 2010), the sheer weight of numbers indicate that it is a powerful social tool. In terms of the current project it is somewhat unclear that a community of practice was actually establish, or developed, although it is clear that something more than a Community of Interest (Fischer, 2006) existed. It is of value to make the point that key elements of Wenger’s definition of a Community of Practice were apparent:

- **The Domain:** It has an identity defined by a shared domain of interest. Membership therefore implies a commitment to the domain, and therefore a shared competence that distinguishes members from other people.

- **The Community:** In pursuing their interest in their domain, members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other.

- **The Practice:** Members of a community of practice are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice. This takes time and sustained interaction (Wenger, 2006).

Hopkins, Thomas, Meredyth and Ewing (2004) make use of the term ‘Social Capital’ to describe “the invisible bonds that connect people into smaller and larger social groups and allow people to work together cooperatively, for the good of the group rather than the benefit of the individual” (p. 370). In the current project those invisible bonds were apparent in the shared communications of the group. The inference here is that while each individual benefitted from participating in the online environment, the benefit to the group (through a strengthened social capital) was of greater educational significance.

De Laat, Lally, Lipponen, and Simons (2007) refer to the need for new pedagogical approaches when teaching online and point out that there are significant differences between working online and face-to-face. In the current project the pedagogical approach was very different to that employed in the classroom back at home in Ras Al Khaimah. For a start, there were no course materials, there were no assessments, there was no teaching and involvement in the ‘subject’ was entirely voluntary and informal. The importance of the informal nature of learning in the context of this project cannot be understated. It goes without saying that learning takes place most of the time, whether we know it (or want it) or not. Folkestad (2006), even though talking about music education and learning, makes some pertinent points in his definition of informal learning. He provides four examples of where both formal and informal learning can exist:

1. The situation
2. Learning style
3. Ownership
4. Intentionality

Each example can relate to a formal or informal approach. In terms of the current
project it is worth expanding on these four situations and asking the questions that Folkestad poses in order to identify what was happening.

1. The situation: Does the learning take place inside or outside of institutional settings?
2. Learning Style: What is the nature and quality of the learning process?
3. Ownership: Who ‘owns’ the decisions about learning, is it didactic or self-regulated?
4. Intentionality: What is the point (or intention) of the activity?

In the current project the answers to those questions are very clear and establish, using Folkestad’s definitions, the informal nature of the learning. The situation was outside (both physically and virtually) the institutional setting. The nature and quality of the process of learning was voluntary, unregulated (by the teacher) and existed for its own sake. The learning decisions were owned by all participants. While communications were initiated by the teacher, none were mandated and all interactions were self-regulated. The point of the activity was to inform and to share. The rich language learning that occurred through that process was incidental to its intention.

Methods

This paper is a report of events that occurred somewhat serendipitously. As such it does not seek to make generalisations about the use of online communication tools in language learning, nor does it make comparisons between different teaching approaches, rather it seeks to report how such learning is possible using e-learning tools. The project was not designed as a research project but the data were kept and contextual analysis became possible. The presentation takes the form of a narrative. It is the story of a journal and of the interactions that occurred through the sharing of that journal. The journal itself and those interactions became the data. The point of the journal was to share a journey not to teach English but the interactions led to a belief that real English learning was occurring. Accordingly, it is appropriate to use an interpretive analysis of some of the interactions in terms of language structure, length of postings and clarity of messages. The analysis and presentation of data is subjective in that it is the authors’ interpretation of what happened. This approach fits very easily into those proposed as post-positivist paradigms and as part of human inquiry (Guba & Lincoln, 1999; Harré, 1981; Lincoln & Guba, 1985). Data were analysed qualitatively and are presented here as part of the narrative. In order to extend that narrative (Shacklock & Thorp, 2005) the results and discussion are presented as a first person account by the first author. This then leads into deeper analysis of the narrative of the social networks themselves.

Narrative

Beginnings with Email

Before leaving the UAE and heading to Australia, I worked with Diploma level students teaching them English. It was their first semester in the college and everything was new and they were facing many challenges during that time. One of those challenges was using English language to communicate. I understood the difficulty they faced, given that I had once been in their position. This helped guide my communication with them and we developed a great rapport.

Leaving them was tough but I promised them that I would keep in touch and share my experiences with them.

In the first two months we communicated by e-mail. They shared stories with me about their friends, their new teacher and sometimes
they talked about personal issues. Also they sent lots of pictures because they didn’t want me to forget what they looked like. All of our conversations were in Arabic until I faced a problem with my laptop; for some reason my email didn’t recognize Arabic. It was then that I told them to write to me in English until I could fix the problem. I was afraid that since I asked them to use English they would stop writing to me. I justified my request as an excellent way to keep helping them improve their language skills, especially writing.

I was surprised to receive many emails from them in English. From their emails I noticed that they were struggling a lot with their use of English. I found spelling mistakes, grammar mistakes and their style of writing was difficult to read.

I knew I needed to do something to help them but I also knew that if I corrected every mistake they would feel that I was testing them and our conversations would turn into online classes. I knew that I would lose their genuine motivation to write to me and realized that they may stop writing altogether. It was apparent that they were quite afraid to write in English and they thought that I would not understand them. I could feel the pressure they were under because in many of the emails that I received they included this sentence; “Sorry Miss, lots mistakes hope you understand meaning”. Frequently, the word “understand” was included after some sentences. It worried me that their English emails were shorter than those they had sent in Arabic. Early emails in English consisted of only a few words; “Hi Miss... How are you? We are OK and we miss you”!

I knew that I needed to be careful with how I dealt with them. I was happy to read their mistakes because I believe that errors can play an important role in the learning process. My first job, therefore, was to make sure that they understood this important point: If they got this idea into their heads, hopefully they would feel free to communicate. This was not simple as online conversation is very different from face-to-face conversation (De Laat et al., 2007).

I began to use some positive sentences to praise their efforts in writing emails to me. I tried my best to simplify my language and adjust it in a way that suited them when replying but I noticed that they stopped sending e-mails in the same way as they had before. They used to send me at least three emails a week and if something important was happening at the college that would keep me updated every day. I found that there were some weeks where I only received one email or sometimes none. This was sad; I liked the relationship that we had developed and I didn’t want it to change. I knew I needed to find another way of getting in touch with them and of motivating them to communicate again.

I noticed that when I included pictures in my emails my students tended to talk more and use different vocabulary than when I just communicated with written text. It occurred to me that this was an approach that I needed to investigate.

**Facebook and Social Interaction**

As a way of changing the means of communication so that I could easily communicate with the group and include media, I opened an account in Facebook. It enabled me to upload and share many more pictures than with email. Luckily one of my students had her own account, so I used her as a way to reach the whole group. My first post included a picture of my room at Ormond College, where I was living in Australia. The following post was this student’s (Maryam) first response:
Maryam: Miss, your room good, I like it... Are your room big!

It is clear that there is problem here, but instead of correcting the mistake directly, I replied by answering the question using correct grammar (‘is’ instead of ‘are’) and posing a question in the hope that she would follow my sentence structure:

Shamma: Yes my room is good and I like it too and it is big, what about your room?
Maryam: My room is big, I sleeping with my sisters I like my room too you sleeping alone?
Shamma: Yes I am sleeping alone

This is one example to explain the strategy that I used and I noticed that she picked that up easily without any problem.

I used to communicate with the rest of the girls through Maryam until one day I received four invitation requests from other students. I was more than happy to read their discussions. Sometimes, because of their apparent motivation to respond to my pictures, they would write a short paragraph as a comment. This surprised me because having taught those girls I knew from my experience how difficult it was to encourage them to write one sentence. It seemed that by responding to my pictures they didn’t have any problem to write and write and write. At times I found it difficult to keep up with their discussion because there was so much of it.

I noticed they were using a wider range of vocabulary than was usual, so as a joke I asked them where they found these words; their answer was “Dictionary Miss”. This struck me as a remarkable achievement. In the classroom I had really struggled to get them to use a dictionary or to search for the meaning of words during reading classes and here they were using dictionaries by themselves.

Extending Teaching

Given that our relationship was that of teacher/student, it was understandable that I asked the students about their studies. In one post after complaining about the cold Melbourne weather I asked them about their studies. Maryam’s response was as follows:

Salam miss Shamma,
We Ok here, the weather is hot and may be 40c!
You lucky we want rain here! Sent to us!
The exam difficult and I get bad mark! Wallah
I study hard miss! but exam hard and no time
to answer and miss take paper!
sorry miss I study hard wallah, next time good wallah
Miss can I send my writing to see and correct!
Miss Ramadan tomorrow “Ramadan Kareem” what to do miss? tell me!
all girls say hi and Ramadan Kareem!
bye bye miss.. we miss you!

Of course this was disappointing to hear but provided me with an opportunity to support the students’ studies. My response included information about myself and my family as well as a link to an English language game and some advice on their studies, and permission to send me work to look at:

Hi all,
Miss you ladies 😊
Yes I talked to my family and I they told me the weather is really HOT!
hahahahaha No I will not send you rain... You need to visit me if you really want that rain!
Sorry about your spelling test! I know you can get good results!
Hopefully you are doing what I taught you!
Remember write the new word and the Arabic meaning and some examples!
And before the exam sit with your friends and study together!
Also remember to write the difficult words and hang them in the class so you can see them always!
Next time I want to hear good news, you all need to study hard.
Check this website it has some games you will like 😊
http://www.eduplace.com/kids/hmsv/smg/

Ramadan Kareem to you all!! I am sad and I miss my family now! But I have my friends with me!
Tell me about your ifoor hahahahaha!
And yes you can send your writing! I will see if you improve hahah!
Say hi to all, I need to go to the University now wish me luck
Bye Bye
Shamma

It didn’t take Maryam long to send me her writing task:

In this paragraph I will write about my weekend. At the weekend I went with my family to the park. We played and enjoy my time. Also last weekend I watched TV and see Indian film with sisters. I loved Indian film, I watched always in the weekend. I went shop in Al Manar Mall and I buyed new books and new phone. I see my friend and we talked and walked there. I played football with my brother. I played good and I enjoyed the game. I loved weekend because I sleep a lot. I studied for the class and wrote all homework. Finally weekend is good.

There are a number of obvious errors in her use of tense, spelling and other areas. I decided that rather than just correcting her work I would remind her of the rules and guide her to other sources:

Hi all,
Hope you are doing well. YES Ramadan is wonderful. Miss my mother’s food and miss having the Fioor with my family and going to Al Traweeh prayer!!! 😊
BUT I have my friends with me so it’s OK 😊
You tell me, how is Ramadan with you?
I love the pictures you sent, my question is did you cook the food? hahaha! If YES it looks good and well done 😊😊

And now about your writing!
I guess you are studying about past tense!
Overall you did well! But you need to work on your verbs more! Remember you are talking about something that happened in the past! So your verbs need to be in the past tense!
Remember the past tense rules:
We can use different words and we will know about past tense like:
Last (week, year, night), yesterday, ago!! (I told you about them before 😊😊)

<table>
<thead>
<tr>
<th>I</th>
<th>You</th>
<th>He</th>
<th>She</th>
<th>It</th>
<th>We</th>
<th>You</th>
<th>They</th>
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<tbody>
<tr>
<td>Played football yesterday (regular verb)</td>
<td>Went to Al Manar Mall last week (irregular verb)</td>
<td></td>
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</tr>
</tbody>
</table>

Remember:
For the Regular verb we only add (ed) like:
walked – talked – played
For the Irregular verb we change the word like: went – saw – came

Now do the practice to learn more 😊😊😊

hahahahaha I feel like am in the class! I remember giving you all this 😊😊 It will be easy dear!
Maryam’s response included a revised version of her writing task (changes from first task highlighted in bold):

In this paragraph I will write about my weekend. At the weekend I went with my family to the park. We played and enjoy my time. Also last weekend I watched TV and saw Indian film with sisters. I loved Indian film, I watched always in the weekend. I went shop in Al Manar Mall and I bought new books and new phone. I saw my friend and we talked and walked there. I played football with my brother. I played good and I enjoyed the game. I loved weekend because I slept a lot. I studied for the class and wrote all homework. Finally weekend was good.

She had clearly understood the use of past tense in both regular and irregular verbs. There are still issues with her use of definite and indefinite articles, and other issues, but these were not my focus. Had I tried to correct everything I might have changed the informal nature of our correspondence and the learning that was taking place.

**Discussion**

Writing is an essential skill that our students need to master to develop academically. As a teacher I know that motivating students to write can be a challenge, but it is necessary to help them improve this skill. While I was away I gave my students a reason to write and to communicate with me. They found themselves writing out of their interest to find more about how I was coping with life in Australia. They were curious to find and learn more. So what they were doing was an authentic writing activity, where they were focusing on their areas of strength to communicate with me since they put huge effort to make their message understood. I used this situation to my own benefit where I focused more in improving their weaknesses. I found myself indirectly providing structure and direction as well as modeling language. My students were following my directions and copying my language without noticing they were doing it. Also, because we were using Facebook and Netlog students were making an effort to proofread their posting as they knew that other people had access to my accounts.

I can say that I created an open environment with my students where I eliminated some of their fears of writing. We approached the writing as something fun and interesting to do. My relationship with my students was more than just a teacher/student relationship; we were friends communicating with each other. My students wrote with more freedom because they knew that I was not going to check and correct their writing all the time.

Using Facebook and Netlog allowed for authentic learning situations as well for many reasons. For example, students were writing for an authentic audience, they were writing to me and to their friends and other people who have access to my accounts. This encouraged them to take care of their choice of vocabulary and grammar. Moreover, communicating using Facebook and Netlog encouraged my students to support each other. For example, students loved to show each other how to use photos in their Facebook accounts and sometimes they helped each other with language use.

I might not have helped them with every aspect of their grammar the way I wanted but I felt that I accomplished many important goals in their learning of the English
language. My students were motivated to use English to communicate even though it was easy for them to use Arabic in Facebook. In order to accommodate my wishes they chose to persevere with English. They were making mistakes and laughing at each other. I was able to correct their mistakes and allow them to comment. Sometimes they even asked for more explanation. In one conversation one of my students said, “Miss Shamma Loves mistakes, she say we learn from mistaking”. It was at that moment that I knew I had accomplished something important. By using a rich vocabulary, where at times I would deliberately choose words that I thought they were unfamiliar with, they were forced to investigate the meaning in order to understand my replies. It was apparent to me that they were enjoying searching for new information and for correct and, at times, more complex words.
Conclusion

In a discussion about scaffolding and Vygotskian sociohistorical perspectives Pea (2004) presents two axes “for organizing the theoretical contributions to supports for the processes of learning” (p. 429). These axes are the social and the technical. His point is that in language acquisition and development the social axis is essential but that technological developments have provided a new support for learning. As is the case in the current project, the meshing of the two axes has occurred so that the technological axis becomes, as it were, part of the social axis and vice versa. This meshing of axes is further extended when considering the importance of the social capital that was developed through the use of social networks. Hopkins et al. (2004) believe that first impressions lead to a belief that online relationships would only make weak social ties: what they refer to as ‘bridging capital’, rather than to the “strong, multifaceted, and highly personal relationships which underpin ‘bonding’ capital” (p. 371). It is likely, however, that these networks make a significant contribution to ‘bonding’ capital through the connections they provide to families over distance, and where online networks “make a useful and economical addition to people’s existing repertoire of communications channels” (p. 371). It is clear that the social capital of this group was enriched through the use of these tools.

This paper has only presented a small section of the rich and varied communications that were created over the twelve month period. The use of contemporary technologies in a way that was safe, non-assessable and non-judgmental assisted the students to develop their knowledge of the world around them and to develop their capacity to use the English language. It was not the purpose of this project to establish quantitative outcomes about the levels of improvement in exam scores, so that cannot be reported here. What this project has shown is that somewhat reluctant and nervous writers can be encouraged to practice and develop skills.

This community of learners was sustained over a period of twelve months and at times generated an almost overwhelming amount of English text. The members of the community participated because they wanted to and the learning occurred through a real desire to improve rather than a desire to do well in exams.

These students were motivated to write through their personal interest in what was happening within the community. The tools facilitated the communication and the nature of those tools dictated the rich and informal nature of the communications that occurred within them.
References


Effectiveness of Distance Education for Women in the Arab World

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Abstract
The purpose of this study was to identify the importance of distance education for women learners in the Arab world. Women’s dialog and its relationship towards learners’ perception, personal relevance satisfaction, and life affiliations were investigated. Aspects of Moore’s (1997) transactional distance theory were investigated in this study. Transactional distance theory provides a framework of the pedagogy of distance education.

A sample of 150 female students at a university in Palestine was surveyed. A response rate of 80% was obtained. Furthermore, 8 females from the responses were interviewed by telephone.

The findings indicated that life affiliations had no significant differences on the women’s dialog measures through distance education. However, the personal relevance satisfaction and the perceptions about distance education were significantly related to the concept of women’s dialog. This study supported the evidence that distance education is a solution to overcome educational barriers.

Keywords: Distance Education, E-learning, Arabs, Women, Interaction

Introduction
Distance education has extended various educational opportunities previously unavailable to remote learners (Hopper, 2000). Although, Alsunbul (2002) indicated that the Arab region is considered a late adopter of distance education, some Arab countries have had experience in this innovative development. This study focused on the importance of distance education for women in the Arab world by investigating the relationship between the women’s dialog (WD), defined by Hopper (2000) as a function of interactions amount among learners, instructors, and other learners and their perceptions of distance education, their personal relevance satisfaction (e.g., self-worth, self-esteem, and self-confidence) with the distance education paradigm, and their life affiliations (e.g., culture, society, and religion) within a distance education environment.

Statement of the Problem
Because of traditional, social, and religious affiliations (Velloso, 1996), the majority of women in rural areas within the Arab world cannot physically attend classes at traditional universities (Palestine Solidarity Campaign, 2007). Furthermore, one of the major obstacles that keep women from obtaining higher educational degrees is that they get married right after high school and become housewives who cannot leave their families. In the Arab world, men have authority over women, and that causes limitations on women’s activities (Velloso, 1996). Thus, women face many obstacles to the pursuit of higher education.

The study took place in a territory of the Arab world called Palestine. Palestine is sometimes known as the Holy Land. The area was under British rule and was called Palestine until 1948. In 1948, the state of Israel was established, and, since then, battles have been
fought over the land (Bergan, 2000). It is very hard to travel from one area to another in Palestine due to security check points causing transportation delays. People in Palestine face daily challenges in achieving an education because of the political environment (Lorenzetti, 2007).

**Purpose of the Study**

The purpose of this study was to explore and identify the importance of distance education on women in the Arab world. This study supported the evidence that distance learning is a solution to overcome educational barriers. Evaluation is a critical component in distance education to assure the effectiveness and the quality of distance education factors such as learners’ perception, dialog, and satisfaction (Sahin, 2006; Simonson et al., 2009). Thus, the relationship between the Arab WD in a distance education setting and satisfaction in meeting their personal goals and their perception of distance education were identified. Furthermore, the study identified the impact of the Arab women’s life affiliations on their dialog in a distance education environment.

**Women’s Educational Challenges**

The majority of students who attain education at a distance are working students and young housewives who wish to qualify for teaching or other fields but cannot leave their families (Mazawi, 2000; Palestine Solidarity Campaign, 2007; Salah, 1992). Studies showed that women with low educational levels were affected by limited career opportunities, and women who pursued higher education had greater numbers of career opportunities (Haque & Batool, 1999; Kwapong, 2007).

In the Middle East, taking time away from husbands and children is a major issue for wives and mothers (Omar, 2005). Studies found that, in the Arab world, approximately two thirds of women were illiterate, and this rate is not expected to be eliminated until 2040 (Hammoud, 2005). As Hammoud’s noted, a recent report of the Arab League Education, Culture and Science Organization (ALECSO) reveals that some 70 million people aged 15 and over stepped into the twenty-first century without being able to read or write, one of the largest population trends it would take three decades to completely eliminate the problem in the Arab countries. The ALECSO report on illiteracy also reveals that almost half of the women (46.5%) in the Arab Region are not able to read or write while 25.1% of the men are illiterate. The absolute number of women illiterate in the age group 15-24 is increasing in most Arab Countries; it rose from 40 million in 1990 to 42.2 million in 1997, and is expected to reach 43.9 million in 2005. (pp. 20-21)

**Research Questions**

1. How does distance education reflect on Arab women’s satisfaction and perceptions?
2. Do life affiliations (e.g., society, culture, and religion) influence Arab women’s accomplishment in a distance education environment?
3. Is distance education the solution for Arab women to overcome their educational barriers?

**Literature Review**

**Overview of Distance Education**

Distance education is a growing trend in all regions of the world. Enrollments have increased tremendously since 1995 (Hunter, 2007). The majority of distance learners are adult women (Hunter, 2007). Simonson et al. (2009) explained that changes in society, politics, economics, and technologies have a major influence on the status of distance education. For many students, distance education aims to release the pressure on the
traditional institutions and to make higher education available to employed students who cannot attend face-to-face classes in any society (Salah, 1992).

**Distance Education in the Arab World**

Distance education has a very short history in the Arab world (Abdul Gani & Al Otaibi, n.d.). Khan, Shazli, Khan, and Sait (n.d.) and Ibrahim, Rwegasira, and Taher (2007) explained that most Arab and developing countries’ governments cannot afford to establish higher education institutions that meet their citizens’ needs. Distance education has succeeded in solving that dilemma and provided the chance of pursuing higher education at a reasonable cost (Ibrahim et al., 2007). The following are the three modes of distance learning institutions in the Arab world:

1. Distance education programs through traditional universities (dual mode) refer to institutions that have offered education through distance as well as on campus. The open learning centers in Egypt, the Distance Education Center of Juba University in Sudan, and the open learning centers in Syria are examples of Arab institutions that have offered distance education using the dual mode (Abdul Gani & Al Otaibi, n.d.; Mohamed, 2005).

2. Distance education universities (single mode) refer to institutions that have dedicated their activities based on the need for distance education. The target university is an example of a single mode distance education university that aims to meet the needs of Palestinian students in Gaza and the West Bank (Abdul Gani & Al Otaibi, n.d.; Mohamed, 2005).

3. Virtual university (virtual mode) refers to institutions that offer distance education totally online, such as Syrian Virtual University (Abdul Gani & Al Otaibi, n.d.; Mohamed, 2005).

**Effect of Distance Education on Women**

Distance education has been seen as a potential solution to help women achieve their educational goals. Moore and Tait (as cited in Ojo & Olakulehin, 2006) stated, In developing countries, human knowledge resource development through initial and continuing education is not only seen as crucial for growth and competitiveness, but also has far reaching social impact, for example in influencing birth rate, increasing the independence of women, and improving standards of health and rural environment. (p. 4).

Distance learning provides a way for women to obtain education because it is very difficult for them to attend traditional classes due to domestic duties (Kamal & Sultana, n.d.). Although distance education affords greater flexibility to women achieving their academic goals, it also enforces a third shift on them by adding extra work to their lives that are already filled with job and domestic roles (Kramarae, 2001). Furst-Bowe (2002) stated that women face challenges balancing their job, family, community, and school. Thus, women who pursue education at a distance are better able to manage their other duties. According to Kwapong (2007), numerous educational studies reported that women’s participation in distance education was high as compared to traditional modes, and most women who attended distance education institutions were married, had dependents, and were working. In Saudi Arabia, distance education became a solution for housewives to obtain an education (Khan et al., n.d).

**Learners’ Satisfaction and Perceptions in a Distance Education Environment**

Numerous studies have investigated learners’ satisfaction and perception through their
interaction to distance education courses. According to Lee, Driscoll, and Nelson (2004), students’ perceptions and satisfaction have been one important aspect of evaluating distance learning. Institutions must include assessments of students’ perceptions and satisfaction to evaluate the effectiveness of their distance education programs (Khan, 2005). Several factors may influence students’ satisfaction with distance learning such as students’ interaction to their instructors and peer counters (Huang, 2002). Picciano (2002) found a strong, positive relationship between student perceptions of their interaction in the courses and their perceptions of the quality and quantity of their learning.

The satisfaction of women as learners occurs from interactions with their classmates and instructors. This interaction gave women the ability to improve their personal growth. Müller (2008) found that women often felt burdened by taking care of children and other family members at the same time as working and continuing their education via distance. A study of 400 distance women learners from a university in Ghana was conducted by Kwapong (2007) and indicated that, by nature, women learned best in groups and interaction. In general, women were satisfied with distance learning, and this pedagogy seemed to enable women to balance school, work, and family demands (Furst-Bowe, 2002). Women experienced greater perceived learning in online courses than in face-to-face courses, and instructor support had positive relationships with perceived learning in both environments. (Anderson & Haddad, 2005). Furthermore, in Moody’s (2004) study, she noted that two of four interview female participants reported that teacher interaction was a key to their distance learning success.

Life affiliation refers to culture, society, and religion. Cultural values have powerful constraints on individual behavior that could limit achieving goals and the success of reflective practices in the academic arena (Richardson, 2004). Women, especially those who are shy, fit well in the online course environment in part because attaining online education provides them with opportunities for self-expression (Anderson & Haddad, 2005). Furthermore, women in rural areas encountered a variety of problems related to household responsibilities, culture, and lack of understanding and support on the part of families (Mulugeta, 1998). However, distance education is a potentially transformative environment for women learners (Gates, 2001).

According to (Al-Harthi, 2005), cultural differences can influence the dialog in a distance education environment. In the Muslim culture, societies obey a strict code of behavior where women are protected from public display and are not often involved in the public arena (Richardson, 2004). Muslim women in their home cultures exercise more privacy because of some societal boundaries (Al-Harthi, 2005). Thus, Muslim women feel more comfortable participating in distance education than face-to-face courses. Distance education made it easier for Muslim women to participate in educational settings. In Arab society, women are restricted in terms of what can and cannot be done, especially in interaction with men. In Arab culture, the relationship between genders is limited not only by religion but also by cultural traditions (Al-Harthi, 2005).

The Method

Theoretical Framework

Moore’s (1997) transactional distance theory (TDT) was the basis for this study. TDT provides a framework of the pedagogy of distance education. The theory was developed in response to the need of individuals who
could not attend face-to-face classes. Transactional distance education occurs when teachers and learners are separated. This separation deals with learners’ and teachers’ behaviors and affects both. According to the theory, the degree of communication between any one learner and the instructor is never exactly the same. Moore (1997) explained that transactional distance is a continuous, rather than a discrete, variable, and a relative, rather than an absolute, term. Moore (1997) identified and described teaching and learning approaches that did not take place in a specific site. Instead, they took place in different locations via distance education. The theory attempted to explain the relationships that occurred between learners and instructors. Furthermore, the TDT showed that teaching and learning in separate locations are better understood as a significantly different pedagogical method (Moore, 2007). Structure, dialog, and learner autonomy are the core variables of the TDT.

In this study, two dialog components were investigated: learner-to-teacher interaction and learner-to-learner interaction. Dialog is important in a distance education environment because it is considered as a primary indicator for evaluating the effectiveness of distance education programs (Simonson et al., 2009). Moore (1997) described dialog as purposeful, constructive, and valued by each party; each party is built upon the contributions of the other party or parties. Moore (1997) also stated that dialog is determined by the educational philosophy of the individual or group responsible for the design of the course, by the personalities of teacher and learner, by the subject matter of the course, and by environmental factors.

This study used qualitative and quantitative research techniques. Two instruments were administered to the participants in this study: the Women Dialog and Distance Learning Survey (WDDLS) adapted from Walker’s (2003) instrument and a telephone interview adapted from Hopper’s (2000) questionnaire. The collected data were used to determine if distance learning pedagogy was a viable solution for women to achieve their educational goals.

Research Design

This study employed correlational research design. Themes were identified related to a specific set of female students’ life affiliations, personal relevance satisfaction, and perceptions of distance education. Then, the impact of the themes identified on female students’ dialog (learner-to-instructor interaction and learner-to-learner interaction) in a distance education environment was examined. The data were analyzed to identify significant relationships among those themes and the female students’ dialog in a distance education setting based on the TDT as defined by Moore (1997).

Participants

The WDDLS was distributed to female students who were enrolled in the summer of 2009 at a university in Palestine. The period of the data collection was toward the end of June 2009 and lasted for three weeks. This institution offers blended format (distance and face-to-face) courses and programs. There were more than 1,300 female students at the target university (Matheos et al., 2007). The study focused on 150 female subjects using simple random sampling across the education program.

Procedures

Qualitative and quantitative research techniques were used in this study to identify themes related to women’s roles in society, culture, religion, satisfaction, perceptions of innovativeness and their impact on women’s perceptions of the distance learning interactions. The simple random sampling was presented by distributing the survey to the first 150 female students who physically
were on the campus. Due to the political issues that are occurring in Palestine and to the participants’ limited access to technology, this study was conducted at a distance. An individual was authorized to manage the study in Palestine. The WDDLS was distributed in Arabic to 150 female students in the Gaza Strip center. Participants were asked by the manager to fill out the surveys voluntarily, sign the consent forms if interested in participating in the telephone interviews, insert the completed surveys and the consent forms in their respective envelopes, and give the sealed envelopes to the manager. Completed surveys were gathered and mailed to the researcher. Statistical analyses were conducted include descriptive, t test, variance, simple and multiple correlations, and regression coefficients. Tables and figures were used to present the data and significant relationships. The telephone interviews were manually recorded. The data were collected in Arabic and translated into English. The interviews were scheduled for selected participants and lasted for approximately 20 minutes. Codes were assigned to individual participants to protect their privacy and confidentiality. The analysis of the telephone interview data followed thematic and emerged techniques.

**Finding**

Of the 150 students who received a survey, 120 (80%) completed the WDDLS. Eight subjects were telephone interviewed. Subjects who chose not to participate in the telephone interviews cited family strictness about releasing personal information. The eight subjects expressed their interest in participating in the telephone interviews and provided useful information. Qualitative and quantitative responses were used to report demographic data, to identify the concept of female learners’ dialog, to obtain a measure of perception of distance learning, to determine personal relevance and satisfaction, and to identify impact of life affiliations.

The study’s research questions investigated women’s perceptions of distance learning in a distance learning environment (WPDL); women’s personal relevance and satisfaction (WPRS) in a distance learning environment; and influences of life affiliations on female learners (WLA) and their participation in a distance learning environment. The reliability for the entire WDDLS was 0.85, which is considered to be highly reliable. According to Gall et al. (2007), reliability of 0.80 or higher is considered to be a sufficiently high indication of determinate reliability.

Responses to the demographic section of the WDDLS indicated that the Palestinian females who pursued higher education at a distance averaged 25 years old, were single, did not have children, were unemployed, and practiced the Islam religion (See appendix A & B). It was thought that the demographic results were related to the economic and political issues that Palestinian people were facing. Distance education is a solution when economic issues are a concern; it is a cost-effective and flexible way of educating people (Khan, n.d.). Distance education is no longer a matter of choice for many; it is the only option in some countries because of social, cultural, economic, and political issues (Khan, n.d.). Table 1 presents the descriptive data collected from the measure of the WD, WPRS, WPDL, and WLA dimensions.

**Research Question 1**

How does distance education reflect on Arab women’s satisfaction and perceptions? A significantly positive correlation at the p < .01 level was found between WD and their perceptions and personal relevance and satisfaction (See Table 2). These indicated that the more women interacted with their instructors and peers, the more satisfied and perceive distance education positively. In addition, the results of the telephone survey
also supported the importance of women’s interaction with their instructors and fellow students. A subject commented,

*I do see the instructor applies an important role in distance education to motivate and encourage the students. I am in my third year; if I did not observe the motivation and the responses to my questions, I wouldn’t continue. Also, through the university portal, there are always discussion sessions between the students and the instructor, and I found them very helpful. . . . There is a social relationship and networking between students. . . . Before any exams, we students usually get together to learn from each other and review for the exams. . . . Now, I feel I am an active individual in my society, and people value me more. My self-esteem has increased as well as my confidence. In the future, I will be a teacher, and I will assist in building a better society.

Another subject stated,

*Distance education helps me to think out of the box and to be independent. The instructor and students both have to collaborate. . . . Distance education gives opportunities for everyone to pursue education. It is the solution for working and married women. Women who finished high school many years ago, they are now attending the Open University. . . . If I ask my instructors a question, usually I get the answer, which is helpful. . . . The interaction between students is very helpful.

Furthermore, the qualitative technique showed that students’ satisfaction of their interactions to their instructors applied toward learning outcomes, whereas their satisfaction with their fellow students applied more toward building social relationships and networking. In an educational setting, interaction through communication and collaboration is the core mechanism that educators use to encourage students to become active, motivated, and satisfied learners (Chang & Smith, 2008).

Table 1: Mean and Standard Deviation for Women’s Dialog, Women’s Personal Relevance and Satisfaction, Women’s Life Affiliations, and Women’s Perceptions of Distance Learning Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>N</th>
<th>No. of items</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women’s dialog</td>
<td>117</td>
<td>13</td>
<td>3.35</td>
<td>0.64</td>
</tr>
<tr>
<td>Women’s personal relevance and satisfaction</td>
<td>119</td>
<td>4</td>
<td>3.90</td>
<td>.065</td>
</tr>
<tr>
<td>Women’s life affiliations</td>
<td>118</td>
<td>6</td>
<td>3.04</td>
<td>1.19</td>
</tr>
<tr>
<td>Women’s perceptions of distance learning</td>
<td>116</td>
<td>8</td>
<td>3.11</td>
<td>0.94</td>
</tr>
</tbody>
</table>

Note. N = 120; three participants chose not to complete all women’s dialog statements; one participant chose not to complete all women’s personal relevance and satisfaction statements; two participants chose not to complete all life affiliations statements; four participants chose not to complete all women’s perception of distance learning statements; all participants were active female students in a university in Palestine

**Research Question 2**

Do life affiliations (e.g., society, culture, and religion) influence Arab women’s accomplishment in a distance education environment? The correlation was found to be nonsignificant between WLA and the concept of dialog (see Table 2). In this study, WLA did not influence the dialog in a distance education environment. Furthermore, the qualitative technique accounted that society and culture had directly influenced the involvement of women who were married and...
had children while pursuing their education. Based on the telephone interview comments, religion did not seem to influence women’s involvement in a distance learning environment. There were adequate interactions between students and their fellow students. However, there were challenges in communication between females and males students due to society and culture strictness.

**Research Question 3**

Is distance education the solution for Arab women to overcome their educational barriers? Distance education pedagogy seemed to be the solution to overcome women’s potential barriers such as gender mix and domestic roles. Women fit well in the online course environment, especially shy women, because attaining online education provides them with opportunities for self-expression (Anderson & Haddad, 2005).

Distance education is a potentially transformative environment for women learners (Gates, 2001). It was reported often during the telephone interviews that distance education was a solution. One student stated, “Yes, the society and my living situations affect my involvement in the program. I am married and I have three children. Thus, distance education was the solution for me.” Also, religion, society, and culture may affect women’s level of dialog in a traditional (face-to-face) environment. Thus, the result of this study seemed to indicate that distance learning alleviated this for women. Muslim women felt more comfortable participating in distance education than face-to-face courses (Al-Harthi, 2005). Thus, distance learning was the solution to overcome this obstacle for most women.

Table 2: Pearson Correlation for Predicting the Correlation Among Women’s Dialog, Women’s Personal Relevance and Satisfaction, Women’s Life Affiliations, Women’s Perceptions of Distance Learning

<table>
<thead>
<tr>
<th>Variable</th>
<th>WA</th>
<th>WPRS</th>
<th>WLA</th>
<th>WPDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD</td>
<td>--</td>
<td>.32**</td>
<td>.03</td>
<td>.32**</td>
</tr>
<tr>
<td>WPRS</td>
<td>--</td>
<td>.11</td>
<td>.23**</td>
<td></td>
</tr>
<tr>
<td>WLA</td>
<td>--</td>
<td></td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>WPDL</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. WD = women’s dialog; WPRS = women’s personal relevance and satisfaction; WLA = women’s life affiliations; WPDL = women’s perceptions of distance learning; * donated the significant correlation at the p < .05 level (2-tailed); ** donated the significant correlation at the p < .01 level (2-tailed)

**Discussion and Recommendations Based on the Results of the Study**

The target university needs to implement more activities to encourage learners’ interactions centered by instructors’ support. Perhaps, continued faculty training on techniques used to provide support, motivation, and encouragement in an educational setting would be helpful. It is essential that a distance course provides activities such as discussion sessions and group projects to reinforce learners’ interactions. Also, prompt feedback and comments from the instructors will increase students’ satisfaction levels and influence their courses (Chang & Smith, 2008).

Due to the Arab society perceptions, women are restricted in terms of what can and cannot be done, especially in interactions with men. Students’ social, cultural, and political factors influence the perceptions of any learning environment (Makoe, 2007). Studies found that there were relationships between learners’ success in any academic environment, including online and certain emotional, social, and academic supports (Ford, 2003). Students’ contributions might...
have been inhibited by those factors (Churchill, 2005). Furthermore, women in rural areas encountered a variety of problems related to household responsibilities, culture, and lack of understanding and support on the part of families (Mulugeta, 1998). Therefore, culture and society apply important roles with women as learners.

The target university needs to implement programs and activities to encourage interactions among instructors, students, and peer students without conflict to any cultural, societal, or religious aspects. Perhaps, in distance education courses, group projects should not involve mixed genders. As a result, female students would feel more comfortable involving and interacting with the same gender within a distance education course. Furthermore, designers of distance education courses need to include diversity of sociocultural context aspects in the development of distance courses. “Understanding the sociocultural context is the key to developing appropriate support systems for distance learners” (Usun, 2006, p. 1).

The target university also needs to have a consulting service available for students to access as needed. Students may have sociocultural issues that limit their activities. A subject stated:

Yes, culture and society affected my choice of which program to pursue. People chose my major not me. I wanted to pursue a different major, but my uncle is the one who chose for me the education major since this major has a very high demand for women in my society

**Recommendations for Further Research**

Based on the findings of this study, the following recommendations are made for further research:

1. Apply the study in other Arabic cultures to determine the influences of diverse cultures toward women in a distance learning environment.
2. Conduct separate studies to determine the effect of well-trained faculty for distance education on women’s perceptions and satisfaction in a distance learning environment.
3. Conduct a comparison study that explores the impact of life affiliations toward the Arab Women Dialog in a distance learning setting versus a traditional setting.
4. Conduct a comparison study that addresses women’s perceptions and satisfaction in a distance learning environment within two different cultures such as the Arab and the United States.
5. Conduct separate studies to investigate the influences of Arabic family opinions on women’s personal relevance and satisfaction in a distance learning environment.
6. Evaluate computer’s skill levels of the faculty in the target university and the use of technology into their teaching through distance and the impact of those skills on learners’ perceptions and satisfaction
References


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**Appendix A**

Participants’ Age Mean and Standard Deviation

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of all participants</td>
<td>118</td>
<td>24.56</td>
<td>6.27</td>
</tr>
<tr>
<td>Age of telephone interview</td>
<td>8</td>
<td>23.63</td>
<td>1.41</td>
</tr>
</tbody>
</table>

*Note. Of 120 participants, two participants chose not to provide their ages; all participants were active female students in a university in Palestine; minimum age = 18, and maximum age = 53 for the 118 participants; for the participants of the telephone interviews, minimum age = 22, and maximum age = 26.*
Appendix B

Frequency and Percentage for Education Level, Religion, Employment, Marital Status, and Number of Children per Participant

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>5.0</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>21.0</td>
</tr>
<tr>
<td>3</td>
<td>54</td>
<td>45.4</td>
</tr>
<tr>
<td>4</td>
<td>33</td>
<td>27.7</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Islam</td>
<td>119</td>
<td>99.2</td>
</tr>
<tr>
<td>Christianity</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Employed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27</td>
<td>22.5</td>
</tr>
<tr>
<td>No</td>
<td>92</td>
<td>76.7</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>81</td>
<td>67.5</td>
</tr>
<tr>
<td>Married</td>
<td>32</td>
<td>26.7</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>5.0</td>
</tr>
<tr>
<td>Widow</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>31</td>
<td>25.8</td>
</tr>
<tr>
<td>No</td>
<td>89</td>
<td>74.2</td>
</tr>
<tr>
<td><strong>No. of children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>20.0</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>30.0</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>10.0</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Note. N = 120. One participant chose not to provide her educational level, and another one did not indicate her employment status. Level 1 = first academic year in the program, Level 2 = second academic year in the program, Level 3 = third academic year in the program, and Level 4 = fourth academic year in the program. All participants were active female students in a university in Palestine.
ICT-Enabled Education for Sustainable Development: Merging Theory with Praxis

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University of Crete, Greece

Abstract
It is widely believed that the major forces shaping and driving the 21st century are: 1) the development of information and communication technologies (ICTs) and 2) the drive towards Education for Sustainable Development. In this paper, the link between ICT and ESD will be explored by: 1) answering two major questions: why is ICT important to ESD? & why ESD is important to ICT? and 2) presenting the key strategic actions that the UNESCO Chair ICT in ESD at the University of Crete has taken to respond to the ICT-enabled ESD challenges. Particular emphasis will be placed to the development of WikiQuESD concept, an e-learning joint Master programme and a Tempus project on reorienting university curricula to address sustainability.

Keywords: ICT, education for sustainable development, WikiQuESD

Introduction
Information and communication technologies (ICTs) are developing rapidly, and being infused into every domain of our societies. Education is also being affected by ICTs: the way one can access and construct knowledge is changed, the roles of schools and the roles of the teacher are changing, and new pedagogical and ethical questions are raised. There is not a universally accepted definition of ICT due to the fact that concepts, methods and applications involved in ICT are constantly evolving and can be contextually interpreted. A broad definition of ICT is concerned with the storage, display, creation, retrieval, process, manipulation, transmission, share and exchange of information by traditional (radio, television, video, DVD, telephone, computers) and modern (video conferencing, e-mail, cellular telephones, weblogs, Web 2, and other social networking software) electronic means. The ICTs in education core principles can be summarised as follows:

- ICTs in education are not just a matter of hardware, but most importantly a matter of pedagogy, teaching and curriculum.
- ICTs are not panacea for education ills. They are effective tools in the hands of effective teachers.
- ICTs make the teacher’s role different, more complex, and more demanding.
- ICTs necessitate continuous “upgrading” of teachers’ competencies and development of new professional development models.
- ICTs should be combined with more traditional technologies rather than perceiving them as tools for displacement of old technologies.
- ICTs enhance “collective intelligence” evidenced through new forms of human interaction and communication as well as collective knowledge construction.
- ICTs potential if not used properly may increase disparities (the have and have not), weaken social bonds and threaten cultural cohesion.
• ICTs can be engaged to create and strengthen partnerships with people, communities and education systems.
• ICTs have to be embedded across school subjects, rather than added to overcrowded curricula as an independent subject.

The link between ICTs and sustainable development is being addressed by extensive debates and research which recognize the challenge new technologies bring to the reorientation of education towards learning to live sustainably (Makrakis, 2006; Makrakis, 2008). The classical Brundland (WCED, 1997) definition for sustainable development “allows current generations to satisfy basic needs without depriving future generations of the same right”. In a recent panel review of 37 experts, sustainable development was consensually defined as “to making informed, contextual and conscious decisions driven by the principles of solidarity, justice, accountability, equity and transparency for the good of present and future generations, locally and globally and to act upon those decisions for advancing social, economic and environmental wellbeing”. Through this definition, we also attempted to define the concept of “Education for sustainability” as the learning needed to maintain and improve our quality of life and the quality of life of generations to come. It is about equipping individuals, communities, groups, businesses and government to live and act sustainably, as well as giving them an understanding of the environmental, social and economic issues involved. Education for Sustainable Development represents a new vision of teaching and learning, a vision that helps people reconnect with nature, by addressing the complexity and interconnectedness of sustainability issues such as poverty, peace and international understanding, sustainable consumption and production, environmental degradation, climate change, water protection and health (UNESCO, 2005). This vision of education emphasizes a holistic, interdisciplinary and cross-disciplinary approach to developing the knowledge and skills needed for a sustainable future as well as changes in values, behavior and lifestyles.

ICT- enabled Education for Sustainable Development

ICTs play an important role in advancing sustainable education in three ways: a) by increasing access to educational materials about sustainability (e.g., via distance learning, educational networks and databases); b) by helping to promote new ways of interactive learning addressing sustainable development issues and 3) by opening access to information and knowledge (Makrakis, 2010a). While ICTs can provide interactive mind/cognitive tools to support learning and develop new understandings and knowledge in areas of teaching and learning for sustainability, ESD themes integrated into the school curricula could provide a worthwhile context for ICTs in education (Makrakis, 2010b). For example, social, economic and environmental issues can provide meaningful and challenging contexts for developing a wide range of ICT skills. In general, ICTs can provide opportunities for learners to construct meaningful learning environments which can be applied to ESD such as: 1) engaging and challenging learners; 2) stimulating dialogue and social negotiation through new modes of social interaction; 3) learning by exploring, discovering, doing and reflecting; 4) constructing personal and collective representations of meaning; 5) supporting discourse in dealing with real-life problems; 6) representing dynamic relationships needed for knowledge construction; and 7) developing pupils' understanding of the implications of ICT for working life, society and the environment. When considering areas such as cultural diversity and intercultural understanding,
health, HIV/AIDS, governance, natural resources, climate change, rural development, sustainable urbanisation, disaster prevention and mitigation, poverty reduction, corporate responsibility and accountability, and the market economy, there is potential to assess the impact of ICTs in these key sustainable development areas.

However, the following are major challenges that need to be addressed when attempting to merge ICT in ESD around the world.

- Education sectors are lagging behind to capitalize on ICTs potential in promoting ESD.
- ICTs can empower and help to facilitate greater access to ESD learning by disadvantaged people, marginalized groups and communities. However, the “digital divide” still remains a major challenge.
- ESD planning with new pedagogy is an essential part of building a whole school approach to ICT-enabled ESD.
- Dissemination and communication of information on innovative ICT-enabled ESD examples and practices may provide opportunities for ESD curriculum experimentation supported by ICT.
- A vision that facilitates an education model responsive to the development of ICT-enabled ESD is often missing among education planners and policy makers.

Rethinking and revising education to address the knowledge, skills, perspectives and values related to sustainability is of paramount importance to current and future societies. This implies a review of existing curricula in terms of their objectives and content with the aim to develop interdisciplinary and cross-disciplinary understanding and knowledge of social, cultural, economic and environmental sustainability. These include skills for problem-based learning, creative, reflective and critical thinking, using appropriate ICTs and reforming teacher training practices so that transformative lifelong learning is fostered. Problem Based Learning (PBL) is preferred as the methodology because of its compatibility with ESD and the strengths and advantages it offers for supporting teachers’ professional development and learning. First, PBL builds on the use of learners’ reflective practice in teaching and learning based on real-life and authentic problems and issues (Stewart et al., 2007; Neo & Neo, 2001). Through this, teachers are encouraged to take more ownership of their professional development in a highly creative and stimulating way supported by hypermedia-based cognitive tools (Jonassen et al., 2003; Brush & Saye, 2002).

Through a PBL process, teachers have an opportunity to develop skills in problem definition and problem solving, to reflect on their own learning, knowledge and practices, and develop a deep understanding of the content domain learning. In a PBL approach, the problem is often stated in the form of key questions, such as the following:

- How can I use computerized graphic organizers to teach vocabulary relevant to environmental sustainability issues?
- Have I ever wanted to measure the effect you have on greenhouse gas emissions in your home and school?
- How can I use data handling tools (e.g. Excel) to construct knowledge and promote learning-based action on ESD local/global issues?
- How can I use ICT to develop my ecological footprint towards sustainable energy or water use, for example?

Dealing with such PBL questions, each can be treated as a self-contained learning module in
an e-learning environment, based on a series of interactive phases, including:

- Problem clarification and its challenges
- Brainstorming initial thoughts about the problem
- Exploring the constituencies of the problem
- Constructing meaning and knowledge on the problem
- Reflecting on initial thoughts with revised thinking
- Applying new understandings and knowledge into action

Let’s take, for example, the last question set on the above list: “How can I use ICT to develop my ecological footprint towards sustainable water use?” If we contextualize this problem in a particular context, we may ask the teacher trainee in collaboration with his/her class students to identify the key concepts from the content domain and examine the challenges inherent in these concepts.

Clarifying the problem and its contextual challenges is intended to situate the trainee teacher and his/her students in the problem context and to begin the process of activating students’ relevant prior knowledge. This leads to brainstorming initial thoughts about water use and abuse, posing questions such as: Why do people in the X country use water as though there is an unlimited resource? Are they aware of the water problems in the future, because of their current water consumption practices? How personal water use, and management of water is addressed to avoid dramatic impacts on the environment, the economy and quality of life. Concept maps could also be considered as an effective tool for organizing information and knowledge management tool in online PBL environments.

Initial thoughts and challenges of the water problem should be further elaborated through a process of exploration which helps the trainee teacher and his/her students to gain additional and deeper insights relevant to the concepts inherent in the problem. In this process, they act as researchers to collect additional resources about water use and abuse that will help them to increase understanding of the constituencies of the problem. Integrating critical thinking into the online learning process requires information to be presented from a variety of perspectives that involves both the cognitive and affective learning domains and certain strategies should be followed for critical reflection (Stewart et al., 2007). Within this online environment the non-linear nature of the information structures and the variety of media formats requires the learner to make decisions about where to find supporting information, what kind of information should be selected to support the task, how much information is needed to justify an argument and what strategy approach is best suited for the problem under investigation (Brickell & Herrington, 2006).

Resources may be primarily links to authentic materials found in the web, which may serve as scaffolds to constructing meaning and knowledge on the ESD issue studied. Scaffolding can be provided through supportive teacher facilitation and also in the use of cognitive tools embedded within the online environment. The latter type of scaffolding is termed “hard” and the former “soft” (Brush & Saye, 2002). The Ecological Footprint calculator and any computerized graphical organizers as well as any other online tools that are embedded in the PBL environment may serve as “metacognitive coaches” providing hints, “hard” scaffolds and models to assist the learner develop skills that facilitate better transfer across domains (Brickell & Herrington, 2006). The challenge of ICT-led Ecological Footprint can be a
measuring tool to encourage people live and work more sustainably. It is realized, first by discovering where we stand in terms of ecological practices and second, by prompting us to setting targets for turning unsustainable practices into sustainable living. Such tools, available online, can be used to identify the ways in which water is used at home. Other tools and inventories based on a list of the most common uses of water can be used to measure the quantities of water used within a set time period. The interactive nature of hypermedia technology provides unique capabilities for the implementation of problem-based environments. This suggests a high degree of learner control. Hypermedia tools, such as video-based scenarios, ecological footprints, visual graphic organizers, electronic notebooks and communication tools help learners explore and address problems in a real-life situation as well as being used as critical reflective scaffolds on the problem-solving process. The trainee teacher can assign students in groups taking certain roles to examine the issue of water use from each group’s perspective and prepare a report and/or a presentation. It is clear from the PBL literature that there is widespread acceptance that collaborative work is a characteristic of the PBL (Albion & Gibson, 1998), especially for knowledge construction (Cobos & Pifarre, 2008; Beers et al., 2005). PBL should not only aim at reaching a level of knowledge and understanding of the issue studied.

As pointed at the beginning, learning to live sustainably is inextricably associated with learning to transformative change. Applying constructed meaning and knowledge about water use and abuse into learning-based behavioral change will eventually help people develop sustainable ways of using water. This is part of the problem solution as it encourages learners to further integrate and transfer knowledge into their cognitive structures that will ultimately lead to transformative behavioural actions.

**ICT-enabled ESD: Merging Theory with Praxis**

The UNESCO Chair ICT in Education for Sustainable Development at the Department of Primary Education, University of Crete has taken initiatives to respond to the ICT-enabled ESD challenges through three major projects.

**WikiQuESD**

This concerns an action research initiative geared towards developing strategies for using digital media and technology to turn pre-service and in-service teachers able to construct Web-based instructional material addressing education for sustainability issues. The “WikiQuESD” concept was advanced as a scaffolding hypermedia tool to enhance teachers’ education for sustainable development (ESD) project-based learning (PBL). WikiQuESD is extended to be defined as a tool for collaborative learning and problem/project-based web-content construction of real-life problems addressing issues for sustainable development. WikiQuESD applications are being designed to use multimedia (images, text and sound), various mind tools and open education learning objects to promote collaboration, connectivity, “real-world” learning-based change, and systems thinking, which are emerging as key pedagogical methods conducive to education for sustainability. WikiQuESD is based on theoretical insights from critical or emancipatory constructivist research and transformative/reflective learning with particular reference to education for sustainability (Makrakis, 2010c). Emancipatory constructivism implies that meaning is shaped and knowledge is constructed through discussion with peers and teachers, and through reflection that leads to learning-based change. Within the two years
of integrating the WikiQuESD platform into undergraduate courses dealing with sustainability issues, more than 100 projects have been developed, which are stored in the WikiQuESD repository and openly accessed.

**Developing an Online Joint Master Degree on ICT in ESD**

Seven European Universities from Greece (University of Crete), Ireland (Dublin City University), Latvia (Daugavpils University), Cyprus (Frederick University and Open University of Cyprus) and Sweden (Uppsala University) with considerable experiences in the fields of ICT and ESD formed a Consortium under the coordination of the University of Crete (UNESCO Chair ICT in ESD) to submit a project entitled “ICT-enabled in Education for Sustainable Development” within the framework of the ERASMUS Virtual Campus Program. This project, which has been selected and financed by the European Commission aims to develop a joint on-line Master degree in the field of ICT in ESD offered in English. It targets experienced practitioners in schools, colleges, community education, NGOs, government bodies and development agencies, all of whom are engaged in applying ESD in many different contexts and countries.

Through this joint effort we make considerable innovative efforts: 1) to improve our own Universities’ “sustainability profile” by developing “learning environments” conducive to ESD supported by ICTs and 2) to develop a new open and flexible postgraduate programme that responds to the increased needs of experienced practitioners who want to play a key role in moving forward the issue of ESD. The content of the curriculum design and development is participatory (e.g. involving end-users, teacher trainers, teachers and students in the process); interdisciplinary (involving various subjects); contextual (dealing with local/global sustainable development issues); holistic (balancing environmental, social, cultural and economic pillars of sustainable development); interactive (ICT-based). It also reflects a shift away from reliance on structured and compartmentalized Master course curricula focusing on curriculum as process (learner-centered) and praxis (transformative and reflective). It provides tools and services that facilitate “social networking” and allows for virtual collaboration and virtual peer mentoring amongst learners and e-tutors. The joint Master program will be ready to take its first students in the academic year 2012-13. It will consist of 120 ECTS (90 ECTS courses and 30 ECTS dissertation).

Changes envisaged are: a) greater access of experienced teachers and teacher trainers to be trained as ESD Leaders in their formal and/or non-formal settings independent of temporal and geographical restriction; b) interdisciplinary and individualized program of study on how to use ICTs in integrating ESD issues reflecting environmental, social, economic and cultural perspectives; c) competent ESD practitioners taking leading roles in their education settings and functioning as human resources for transformative ESD practices; and d) promotion of virtual student and staff mobility which adds value to a new dimension of mobility.

**Reorienting University Curricula to Address Sustainability**

A Consortium consisted of six European Universities, together with universities from Egypt (Heliopolis University for Sustainable Development & Suez Canal Universities), Jordan (Hashemite University & University of Jordan) and Lebanon (University La Sagesse & Notre Dame University), the UNESCO Regional Office for the Arab States and three NGOs, MIO/ESCDE/MEdIES, IndyACT and
SEKEM Development Foundation formed a Consortium under the coordination of the University of Crete (UNESCO Chair ICT in ESD) to submit a TEMPUS project entitled “Reorient University Curricula to Address Sustainability”. The project was approved by the respective authority of the European Commission.

The overarching goal of the project is to help partner Higher Education Institutions infuse ESD into their curricula (study programmes) and teaching methodology through capacity building of university staff. The key question is how to best advance curriculum change towards ESD, given the regional priorities and the need to modernize curricula to address ESD. This cannot be achieved without well-prepared and committed staff to lead curriculum reform and innovation towards ESD.

The Project integrates a wide range of activities to develop resources, revise and develop new curriculum initiatives, build capacity and strengthen national and regional networks. More specifically, the project specific objectives are to:

- Support the development of ESD in the Higher Education sector in Egypt, Jordan and Lebanon.
- Build capacity amongst university staff to embed ESD in curricula and pedagogy.
- Review and revise undergraduate curricula to address ESD in line with Bologna and Lisbon processes.
- Assist the coordination and dissemination of ESD policy, research, curriculum reform and practice relating to ESD in the partner institutions that are expected to function as role models in the region.

This process entails six key components:

1. Develop ESD competences for Higher Education students contextualized to the E.U. and Arab region.
2. Evaluate ESD student competences in the participating Higher Education Institutions.
3. Establish new models of professional development in ESD.
4. Revise education and certification requirements to include ESD and align these revisions to correspond to the ESD student competences and the Bologna process.
5. Apply and evaluate the revised education curricula with respect to the ESD student competences.
6. Promote reorienting Higher Education towards ESD as a viable avenue for “whole institution” curriculum reform, research and teaching across all Higher Education Institutions in the Arab region.
Conclusion

Information and communication technologies have now penetrated our societies very profoundly, and they influence all sectors of our activities. Focusing merely on ICT skill development, however, is problematic since it offers teachers little opportunity to transfer their skills into ESD teaching. If educators are going to be convinced to change their practice by integrating ESD supported by technology into their teaching, they must see the relevance of both ESD and technology to what they do in the classroom. This implies that:

- teachers need to work in contexts supported by experimentation;
- avoid isolating technology as a separate discipline and instead provide an instructional focus that illustrates how technology can support ESD goals and objectives;
- provide a non-threatening and cooperative learning environment that is sensitive to the individual teacher's level of expertise and experience; and
- guide teachers to cross the bridge between technology’s capabilities and curriculum requirements.

What is required is a transformation of the culture of teaching through changing first the teachers’ conceptions about their old-pedagogy and then equip them with the knowledge about and the skills in how to merge technology with learning, teaching and curriculum.
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Education 2.0: Developing Corporate Social Media Policies for Higher Educational Institutions

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Abstract
As higher educational institutions recognize the potential of using social media tools in the educational practices as part of the wider shift towards Education 2.0, they start involving in these tools to increase the value delivered to their students and other key stakeholders. However, many of these institutions have realized that in addition to these opportunities, several challenges and barriers face the successful adoption of social media in educational institutions. Developing and applying corporate social media policies could offer a great help to these institutions to maximize their gains of social media tools and avoid or minimize the potential risks. The main purpose of this paper is to highlight these areas and to explore from the students’ perspective the issues need to be addressed by such corporate social media policies.

Introduction
Every year, Time magazine picks an individual and name him/her as the Person of the Year for a unique contribution and influence he/she makes in our world. For 2010, Time selected Mark Zuckerberg - founder of Facebook – the world’s most popular social media site to be the Person of the Year. For connecting more than half a billion people and mapping the social relations among them, for creating a new system of exchanging information and for changing how we live our lives, Mark Elliot Zuckerberg is TIME’s 2010 Person of the Year” (Stengel, 2010)

This recognition of the growing and expanding influence of social media in our daily life is not the first of its kind. Back to 2006, the Time itself surprised its readers by naming “You” to be the Person of the Year. (Grossman, 2006) In its justification for the selection, Time says:
But look at 2006 through a different lens and you'll see another story, one that isn’t about conflict or great men. It's a story about community and collaboration on a scale never seen before. It's about the cosmic compendium of knowledge Wikipedia and the million-channel people's network YouTube and the online metropolis MySpace. It's about the many wresting power from the few and helping one another for nothing and how that will not only change the world, but also change the way the world changes. (Grossman, 2006)

Between 2006 and 2010, social media and social networking sites in particular have expanded remarkably to the limit that social media is now considered the top activity on the internet (Qualman, 2009). At the time of writing, the number of active users on Facebook site only has exceeded 500 million users 70 percent of them outside the United
States and they use 70 languages to connect and communicate on the website (Facebook, 2010), this means that if Facebook were a country, it would be the 3rd largest country in terms of population immediately after China and India. This growing population on Facebook and other social media sites represent an opportunity for organizations from different sectors. Today, 79% of the Fortune 100 use at least one of the main social platforms (i.e. Twitter, YouTube, Facebook, and blogs) to communicate with their customers, 82% of them use Twitter and tweet at 727 times per week while 50% of the Fortune 100 have a YouTube account and upload 10 videos on average a month. (iStrategy2010, 2010)

On the government side, this opportunity has been detected as well. Leaders from around the world have discussed the “Future of Governments at the World Economic Forum (WEF Global Agenda Meeting in 2009. The forum has identified “four new forces enable transformation of government”, one of these four forces was the Web 2.0 which described by (World Economic Forum, 2009) as “Technology Revolution”. The meeting leaders, have described how social media and Web 2.0 would change the governments by saying: ”The static, publish-and-browse Internet is being eclipsed by a new participatory web that provides a powerful platform for the reinvention of governmental structures, public services and democratic processes.” (World Economic Forum., 2009. p. 161)

Higher educational institutions form no exception at all, since 2004 when Facebook were founded, all colleges within the United States have established their networks within the site and 85% of college students that have a college network within Facebook have adopted it (Munoz & Towner, 2009).

This paper aims at highlighting another side of the story: corporate social media policies for higher educational institutions. After going through the literature review, we present the methodology followed in conducting our pilot study and highlight the key questions we are trying to answer. Then, we present and analyze the collected answers and put them in the context of the reviewed literature where possible. Finally, the conclusion section provides a wrap up and highlights of the future research trends.

**Background and Literature Review**

We define social media as web based technologies that enable the social interaction between individuals and empower them to generate and exchange user generated content and to partially or fully fulfill tasks that are used to be handled exclusively by institutions. Many tools fall under this definition including social networking sites, blogs, wikis etc...

In their evaluation and estimation to the impact made by social media on the way we live, some researchers have went far to the limit of comparing the impact of social media to the impact made by the invention of printing press by Gutenberg in 1884 (A survey of new media, what sort of revolution?, 2007; Tapsoot & Williams, 2010)

Fraser & Dutta (2008) followed a similar radical approach but with focus on social networking sites and how they will transform everyone’s life, work and world. Fraser & Dutta (2008) believe that the growing popularity of famous social networking sits such as Facebook and LinkedIn is empowering the social connections between individuals from around the world. As a result, Fraser & Dutta (2008) argue that social media is causing the identities to be disaggregated, status to be democratized and power to be diffused from traditional institutions to the individuals.
So, it’s obvious that there is a wide consensus on the general impact of social media and in the way individuals communicate and exchange information and in the way organizations do their businesses. But organizations need to understand the mechanism of social media and how it’s different from “traditional media”, this is essential for them to develop effective policies. Here we briefly highlight some of the key features of social media:

- The communications on social media and social networking sites in particular tend to be interactive rather than authoritative, and tend to be narrowcast as compared to the broadcast traditional media which means that the right message from organization can be sent quickly and directly to the right audience (Kingsley, 2010).

- They empower individuals to be active participants, to move from the consumer zone to co-produce and share content, determining reputation/feedback (Ala-Mutka et al., 2009), and enable the individuals to fulfill or at least participate in fulfilling tasks that used to be exclusively fulfilled by institutions. As a result of this empowerment, social networking sites diffuse power from institutions to individuals, from professionals to armatures and from producers to consumers (Frazer & Dutta, 2008)

- Social networking sites are horizontal, informal, and unpredictable as compared to the institutions which are vertical, formal, vertical, hierarchic, static and rigid (Frazer & Dutta, 2008)

These characteristics if well understood by educational institutions, can be leveraged to enhance the quality of provided education by enriching the interaction with students and engaging them more effectively in formulating the educational models applied by their institutions and in the decision making process.

But alongside these characteristics of social media and the opportunities created by them, a list of challenges and risks rise. Here are some of the most important challenges that are related to the higher educational institutions:

- The privacy and security challenges: privacy and security risks are used to be discussed in associated manner and in many cases this leads to confusing policy guidance, so it’s important to draw a distinguishing line between privacy and security breaches. “Privacy breach is the inappropriate use of personal information by those who are allowed to access the information. Security breaches involve stealing or illegally offering data by those who were never intended to have it” (Bradley, 2008)

- On the security side and according to the (Federal CIO Council, 2009), social networking sites are vulnerable to three types of cyber attacks: spear phishing, social engineering, and web application attacks.

- Reliability of published information: one unique feature of social media is that a great portion of the content posted on them is User Generated Content (UGC) (Borgne-Bachtschmidt, et al., 2008), this fact raises valid concerns about the reliability of this content. Statements on social media sites often lack authoritative sources and small group of users can be dominant within the network which may cause a bias in the information provided through social media and
social networking sites (Hujiboom et al., 2009).

- For higher educational institutions, this could be a serious concern as they can’t compromise the applied academic standards that govern the academic content creation and sharing. This concern should be given a special attention when designing the corporate social media policies.

- Governing participants’ behavior: similar to the previous one, this challenge is caused by UGC (Hujiboom et al., 2009). Higher educational institutions should consider how to maintain key behavioral requirements such as accountability and transparency while opening its social media sphere to participants from inside and outside these institutions.

- The culture and skills challenges: though it varies for sure from one context to another, we consider the cultural challenge as one of the most crucial yet overlooked challenges organizations from different sectors could face while trying to leverage the power of social media. Let’s consider the case of government sector. (O’Reilly, 2010 pp 11) suggests that government should act as a “platform”. To do this, cultural-shifts are required on both the government and the society sides. Societies need to act more proactively and leverage the power of social media positively by feeding the governments with useful content to be used in improving services and policies. Governments on their turn have to be more open and ready to accept the fact of sharing the power with their citizens and start redesigning their business model to fit the new citizen-centered and citizen-provided services. In our opinion, this applies for higher educational institutions hop for successful adoption of social media. Moreover, higher educational institutions to prepare its faculty and administration staff with the required skills to be able to understand the pattern of discussions going on social media and to start engaging with the students and other community members.

Having reviewed all these issues related to social media, let’s see how (Redecker et al., 2010) and (Committee of Inquiry into the Changing Learner Experience, 2009) discussed the impact on social media on learning in Europe and UK respectively.

(Redecker et al., 2010) indicate that the high usage of social media application outside the formal educational settings offers new opportunities for the educational and training institutions. Some of these opportunities include boosting accessibility and availability of learning content, offering new formats of knowledge dissemination, acquisition and management and supporting individualized learning processes. (Committee of Inquiry into the Changing Learner Experience, 2009) draws the pattern of social media adoption by educational institutions in UK and concludes that social media is now used across wide range of universities activities but more important this deployment is “no way systematic and the drive is principally bottom up, coming from the professional interest and enthusiasm of individual members of staff” (Committee of Inquiry into the Changing Learner Experience, 2009). This individual-driven approach reflects one of the key characteristics of social media and social networking which is horizontal and animated by informal exchanges between individuals in contrast to the top-down institutions which
are formal, hierarchic, static and rigid (Fraser & Dutta, 2008).

However, (Redecker et al., 2010) agree with (Committee of Inquiry into the Changing Learner Experience, 2009) on a number of challenges that face educational institutions welling to tackle these opportunities. On the top of these challenges comes the digital divide between those who have the access to internet and social media and those who don’t and between those who have the required digital skills to use these social media tools. Other challenges are applicable to deployment of social media tools in different businesses and not education in particular; privacy and security risks are typical example of such challenges. Privacy breach can be defined as “the inappropriate use of personal information by those who are allowed to access the information” while security breaches involve “stealing or illegally offering data by those who were never intended to have it” (Bradley, 2008) (Munoz & Towner, 2009) tackled the same topic but from a very specific angle: the use of Facebook for teacher education and recommends that instruction on how to use Facebook in the educational process should be an integral part of the teacher education programs.

Some authors focused on the need for corporate policies to manage the organizations’ use of social media, (Hrdinová, Helbig, & Peters, 2010) for example discuss this issue but with focus on government organizations. However, many of their findings and recommendations are applicable in organizations beyond the government sector.

**Research Purpose and Methodology**

The aim of this pilot study is to highlight the issue of developing corporate social media policies for higher educational institutions. More specifically, the study is trying to present answers to the following questions:

- Can Social Media tools be useful for the educational purposes?
- If yes, in which areas of educational processes social media can be used?
- To what extent it's important to have a social media policy outlines how social media should be used in higher educational institutions?
- In such a policy document, what are the main issues need to be covered?

The pilot study has focused on targeting the students who represent the key stakeholder of higher educational institutions. The primary data source was a web-based survey distributed on a sample of 50 university students in United Arab Emirates (UAE), this survey offered the quantitative data on students perception while the secondary data sources included sample reports on the same topics prepared by higher educational bodies and some available literature on the topic.

It’s important to highlight that the small sample size the relatively low response rate (30%) represent a limitation on the followed methodology. Although we analyzed the answers of the respondents in light of the available literature, we still advise to consider the answers with caution.

**Results and Analysis**

The answers provided by the responders go to great extent in line with the findings presented with the available literature and the global trends in the field. All of the responders agreed that social media can be useful if used for education purposes (67% of them strongly agreed). When asking about specific educational processes in which social media can be used, education processes came on the top of the respondents’ choice with 80%, followed by marketing with 50% then student
support with 40% and finally administration processes with only 13% of the respondents. These findings are aligned with what (Committee of Inquiry into the Changing Learner Experience, 2009) suggests as the areas of educations empowered by social media in universities across UK and other parts of the worlds (e.g. US, Australia and South Africa) use social media. This similarities is another example on how technologies are “universal and transcend national boundaries” (Committee of Inquiry into the Changing Learner Experience, 2009). However, (Committee of Inquiry into the Changing Learner Experience, 2009) argues that the differences in infrastructure (e.g. broadband adoption) can derive some differences in the pattern of use of social media.

In the case of the UAE, the numbers are really interesting and show that the society is heavily involved in social media. According to (Arab Media Outlook, 2010), 70% of the internet users in UAE are subscribed to one of the social networking sites which is the highest uptake in all Middle East and North Africa (MENA) countries, and it’s even higher than the 30% uptake in EU countries (Ala-Mutka et al., 2009). Such figures when combined with other infrastructure related figures such as the mobile phone penetration which reached 230% (Emirates 247, 2010) and the demographic indicators where 32% of the population fall within the age group of (15-19) years old (UAE Yearbook 2009, 2010) can tell about the great potential of social media adoption by the educational institution in the country.

On the importance of having corporate social media policies in place, only 14% of the respondents were neutral, while the rest agreed on the importance of having such policies. However, the respondents showed more diversified perception when asked about the most important three issues such social media policies should cover. The behavior issue topped the list with recommendation of 80% of the respondents, followed by privacy (46%) and then copyright and intellectual property with 40%. The security issue came at the bottom of the list with 27% only. The students’ identification of issues to be covered by social media policies are consistent to a good extent with the suggestions made by (Hrdinová, Helbig, & Peters, 2010), even though their suggestions are made for government organization (which might be universities well). This priority given by the respondents to the issue of behavior on social media restates it as one of the key challenges of social media as we highlighted earlier in this paper. However, we believe that if the universities’ faculty and admin were covered by the survey security and privacy might go up to the top of the list beside other management issues such as managing the institution’s account on social media sites.
Conclusion

In this paper, we focused on the issue of designing corporate social media policies for higher educational institutions. More specifically, the paper tried to provide answers to the following questions from the students’ perception:

Can Social Media tools be useful for the educational purposes?
If yes, in which areas of educational processes social media can be used?
To what extent it’s important to have a social media policy outlines how social media should be used in higher educational institutions?
In such a policy document, what are the main issues need to be covered?

The answers to these questions were collected through a web-based survey targeted a group of higher educational students in UAE. The feedback of the respondents showed a great enthusiasm towards adopting the social media tools in various processes within higher educational institutions especially the educational processes. The respondents showed a high support to the idea of having corporate policies to guide the adoption of social media, they expect such policies to provide dos and don’ts on a number of issues including behavior of participants on social media, copyright and intellectual property, privacy and security.

While this paper covered an important issue through the eyes of the students who represent the key stakeholder of higher educational institutions, we believe that this pilot study can be taken to further level by expanding the surveyed sample and by considering the perspective of other important stakeholders: the faculty and management of higher educational institutions. Merging these perspectives would be very helpful to draw a more accurate picture of the issues discussed in this paper.

In addition to the social media policy, there is a need to develop a model for higher educational institutions to offer them guidelines or a framework on the actual “process steps” to be followed when starting adopting social media into their various educational areas.
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The Integritas System to Enforce Integrity in Academic Environments

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Abstract

The Integritas System was developed by the University of Johannesburg to manage two important academic aspects:

- Ensure integrity (proper identification and authentication) in examination environments
- Monitor class attendance

The Integritas System makes use of biometrics, specifically fingerprints, to achieve the aspects mentioned above.

This paper briefly discusses the Integritas system and the experience of the University of Johannesburg during the initial implementation of the system.

Introduction

Universities need to make sure that when a student writes an examination, that student is in fact who he/she says they are. If this cannot be enforced, masquerading can take place causing integrity problems for the relevant University. Up to now the most widely used way of identifying these students was to use some form of Student Card containing a unique Student Registration Number (SRN) and a photo of the student. Three important problems arise from this approach.

Firstly, the photos on the Student Card are often not very clear and it is difficult to identify and authenticate students from the photos on their cards. Because of this, a Student B can very often get away in using Student A’s Student Card to identify himself/herself as it is often difficult to really determine whether the photo is that of Student A or Student B.

Secondly, it is often difficult and undesirable to challenge a student too directly about his/her identification, as it is preferred to prevent any confrontation between students and invigilators regarding such identification.

Thirdly, Student Cards are often not too secure and it is possible to change the student number or photo on these Student Cards to facilitate such masquerading.

These factors and some more, effectively allow students to write exams on behalf of other students, i.e. to masquerade as another student. This is of course extremely undesirable as it impacts directly on the standards, integrity and brand name of the specific institution.

Furthermore students may enter the examination room, receive an examination paper, judge it as too difficult, and then leave. They then claim that they were not present (as the student does not sign the customary form indicating attendance, and removes all other proof of presence before leaving) and he/she then applies for a supplementary examination hoping to get an easier examination paper.

All these problems are more difficult to address in large classes of two or three hundred students or in instances where examinations are written in a distributed manner all over the world in a distance
learning environment. In such cases, the invigilators are total strangers and have probably not seen the student before, making identification and authentication even more difficult.

Apart from the problem of enforcing integrity during examinations as discussed above, the University of Johannesburg is a residential University, and lecturers are anxious to get a better handle on which students attend lectures in order to have a better link between class attendance and academic performance. Taking roll call by means of a form to be signed by students present in a lecture, does not work as students sign on behalf of others who are not present.

The Integritas System was developed by the University of Johannesburg to address these problems of enforcing integrity during examinations by eliminating masquerading and to have a trusted way of monitoring class attendance by ensuring a sound approach to identification and authentication of students.

The Goals and Development cycle of the Integritas System

Goals of the Integritas System

As indicated above, the main goals were to address the problems indicated in paragraph 1. Furthermore, it was emphasized strongly that the implementation should not cause any bottle necks and delays as far as entrance to rooms and lecturing time were concerned. For this reason, the idea of fixed control measures (fingerprint readers) at the entrance doors of lecture rooms was not considered. It was decided to base the system on biometric technology, and electronic fingerprinting was selected.

It was decided to develop small self-contained mobile units which could be sent along the rows in a lecture room capturing the identification and authentication information of a student while the lecture is taking place. The unit is passed from student to student during the lecture. No discussion about potential problems takes place with the student in the lecture room itself – all analysis are done afterwards, and any necessary discussion take place afterwards in private between the lecturer and the student.

Development Cycle of the Integritas System

Development started in 2009 with the development and roll-out of Version 1 of the hardware. Initial tests were conducted in 2009 and the first part of 2010.

From the experience in 2010, the development of Version 2 started in about August 2010. The changes between Version 1 and Version 2 are discussed in paragraph 8. This paper uses Version 2 to describe the operation of the system.

Hardware of the Integritas System (Version 2)

The system consists of a back end database and self-contained mobile units. The mobile units are about the size of a credit card machine used in shops. It is specifically the mobile units, called Integrita Units, which are at the heart of the system. These Integrita units have the following hardware features:

- A Built in RFID card reader which can read the Student Registration Number (SRN) from the Student Card
- A Built in fingerprint reader
- A GPS facility
- A Keyboard
- A processor
- Internal memory containing fingerprint templates of all registered students (the onboard database – see below)
- The Unit can be docked into a base plate containing a small built in printer
- The units are ‘standalone’ with their own battery power supply.
- A USB port to connect to desk top or laptop computer
• A network interface for uploading and downloading results and updating the onboard registration database

**Operation of the Integritas System**

Assume all students are registered on a central back end database (this will be discussed later in more detail in paragraph 6). A record in this database contains, amongst other things, the student’s name and unique Student Registration Number (SRN), and a set of 8 fingerprint templates (all except the two thumbs) of the student. A copy of all students’ captured fingerprints is downloaded onto a unit’s onboard database.

The system can be used in three modes:
- Roll call mode
- Examination mode
- Registration mode (Enrollment mode)

Each of these modes will now be discussed briefly.

**Roll Call Mode**

In this mode the unit is used without the printer. An assistant will send one or more units into the rows of the lecture room, depending on the size of the room and the length of the lecture.

A student touches his Student Registration Card on the built in card reader, or type in his student registration number. This provides the unit with the student’s Student Registration Number, say XXX. The unit now requests him to put a specific finger (except thumbs) on the fingerprint reader – this is repeated for one more fingerprint – so two fingerprints per student are captured. The mobile unit extracts the fingerprint templates of the provided fingerprints from the fingerprints and compares it with the fingerprint templates stored for Student Number XXX in the onboard registration database. The result can be a match or a mismatch or a partial match (for e.g. for only one of the two provided fingerprints). Whether it is a match or a mismatch or a partial match, the result is just stored on the unit and no indication is given to the student about any result. The unit is moved to the next student. The whole process takes about 30 – 40 seconds per student.

Real world statistics showed that an onboard registration database consisting of 11000 students with 8 fingers registered per student is approximately 350MB in size.

In this way the unit is passed throughout the lecture room. This happens while the lecture is in progress, and has an extremely small impact on the student and the lecturer.

After all students had been processed, the assistant collects the units and leave the lecture room with the units.

Afterwards the results are downloaded from the units, integrated with the class list of the specific course, and stored in a database for reporting purposes. A lecturer can now access this database and get a clear indication of attendance at the lecture.

Students who attended, will be indicated as such, and students who were absent list will be indicated as such. The system will highlight students where the offered Student Number does not match the captured fingerprint, and the lecturer can investigate – this scenario basically never occurs because it will represents a student who just attended a lecture on behalf of another student.

See paragraph 7 for example reports.

**Examination Mode**

In this mode the unit is used with the printer, and is sent into the rows of the examination room as in the Roll call mode (more than one unit can be used).

As in the Roll Call mode, the student touches his card on the unit or types in his Student Registration Number (SRN). The unit reads and stores the SRN from the card and requests the student to put a finger on the fingerprint reader on the unit. The offered fingerprint is captured by the unit. This is repeated for another fingerprint. Therefore two fingerprints are requested and provided by the
The templates of the two fingerprints are then compared with the templates for the relevant SRN stored on the onboard registration database on the unit, and the relevant outcome is stored on the unit. Up to this point everything happens as in the Roll Call mode. However, from here, more things happen.

The unit then does some processing, and the printer prints two stickers. The one sticker is a bar code of a calculated audit number based on the student’s Student Registration Number read from the Student Card, the provided fingerprints and other information like the time, date etc. The other sticker contains the date and time.

The first sticker is stuck on the answer script, and the second stickers kept by the student as a proof of presence at the specific session. The unit is then passed to the next student.

The assistants in charge of the units ensure that no student is skipped, either by chance or deliberately.

No student is allowed to leave the room before he had been processed as described above. If a student leaves the examination room very early, he can only do so after being processed by a unit provided by an assistant manning the exit doors, even if he had been processed by a unit while sitting in the room. Any late arrival will also be processed at entrance by a unit handled by an assistant at the door.

Again, afterwards, the results are downloaded, and reports generated as in the Roll Call mode. When the lecturer afterwards investigates a generated report, any case where there is a discrepancy between the supplied Student Number and fingerprint as highlighted on the report, will be investigated individually by the lecturer, as these are the cases which could indicate masquerading.

To assist with the initial enrollment of student fingerprints, the unit can be used in a registration mode. In this mode the Student Registration Number is entered or the student card is touched to the unit. The student’s 8 fingerprint templates are captured and stored in the onboard registration database. Using the network interface supplied with the unit, the information is synchronized with the back end registration database. This mode is not used for large numbers of students, but rather for individual ad hoc cases. The bulk of initial registrations happen as described in paragraph 6.

Benefits of the System

In Examination Mode

Suppose a Student A ‘hires’ a friend, Student B, to write a specific examination on behalf of Student A. Student A gives Student B his Student Card, and Student B enters the room to write the examination. When the Integrita unit gets to him, he will use Student A’s Student Card to touch the unit, and Student A’s SRN will be read. However, Student B will be forced to supply one of his own fingerprints when requested so by the unit. Student B does so, and the unit calculates an audit number linking Student A’s SRN to one of Student B’s fingerprints. The bar code and proof of presence is printed. Student B sticks the bar code on the script, takes the proof of presence part, and passes the unit to the next student. He continues to complete the examination under Student A’s name and eventually hands the completed script.

When the data is afterwards downloaded, and compared to the data stored on the back end database, the system will detect that there is a discrepancy between the fingerprint of Student A (whose Student Card was used) stored on the back end database and the one supplied during the examination session by Student B – these two fingerprints will not match. This will be highlighted on a report produced by the system.
When receiving the report, the lecturer will now notice this, and can confront Student A with this fact – remember Student A’s Student Card was used, so Student A is the person to be investigated.

Furthermore, when the relevant script itself is investigated, the bar code on the script will support the discrepancy as the bar code would have linked Student A’s SRN with Student B’s fingerprint. Even if Student B gave the proof of presence to Student A, and Student A offers that as proof that it was actually he who was present, the fact that the proof of presence sticker is linked to the audit number, proves that it was actually Student B who was present and not Student A.

Note that up to this point Student B may be anonymous, but by comparing the fingerprint supplied during the examination session with all fingerprints on the back end database, a 1 to many search, Student B may be identified (if he is a registered student).

Note that all investigations take place afterwards, and not during the examination session. Suppose a student entered the examination room, receives an examination paper, decides it’s too difficult to write and decide to leave the room. He makes this decision before the unit reaches him, so the unit will have no record of his presence. However, as stated above, he can only leave after being processed by a unit manned by an assistant at the door, ensuring that he is on record. If a student arrives late to deliberately miss being processed by a unit moving along the rows, he will be intercepted by an assistant with a unit at the entrance door. This operation can therefore enforce total integrity in terms of a student not being able to masquerade as another student.

All scripts handed in will now have a bar code stuck onto the answer script. The system now allows for these bar codes on the scripts to be read by a bar code reader which will produce a list indicating the identity of the student whose information was used when the bar code was created. The invigilator in the examination room can now scan all the scripts handed in, and quickly get a complete list of all scripts handed in. This helps to reconsolidate scripts. When scripts are marked, because no name appears on the script, anonymity is ensured. After marking, scripts can again be read by bar code reader and marks entered onto the class list.

**In Roll Call Mode**

In this case the operation is the same as above, except that no printing takes place. By studying the provided report, a lecturer can now get an authentic list of who attended the specific class and who was absent. In this situation it is in the student’s best interest to ensure processing by a unit otherwise he will be indicated as absent even though he had attended the lecture.

**Enrolling Students and the Back end Database**

Each student registers at the university in the first year of his studies. During the registration process the student also registers his/her fingerprint images. This is done in a dedicated environment, not using the mobile units but standalone fingerprint readers. This information is stored in a central registration system (separate from the normal University registration system) to be used during the matching and reporting stages. These fingerprint templates can at a later stage be downloaded onto the onboard memory of the mobile units, creating the onboard database referred to above.

As indicated in 4.3 above, this can also be done on the mobile unit itself. This is however only done for small groups of students, for e.g. latecomers.

**Examples of Reports**

The following report represents the results of an Examination session.
The lecturer can use the legend attached to the report to understand the results. In an exam there can be four different categories. In normal operations two random fingerprints are captured to enhance the reliability of the system and make the counterfeiting of fingerprints more difficult. If both captured fingers match then a result of “A” is given. If only of the two fingerprints match then a result of “B” is given. In both of these cases it can be acceptable results.

If there is an audit number stored electronically, but there is no scanned sticker, then it is also not acceptable and is categorized as “D”. This can mean a lost answer sheet or sticker, or a student didn’t hand in his answer sheet which can mean that he/she may have been in the examination room, but found the exam too difficult and want to be marked as sick. In the case of a “D” result it may be necessary to try and match the captured fingerprints against the whole database, because a student may not have used his/her own SRN.

The following report represents the results of atoll call.
The same categories exist for a roll call report, except for category “C” and “D”, since there is no audit numbers on stickers that has to match during roll call.

If a student’s fingerprints didn’t match the requested fingerprints, but were matched against other fingerprints of the student then it categorise the result as “C”. In this case the report classifies it as a warning because it can be possible that the student manufactured a set of false fingerprints.

If none of the fingerprints could be matched against the student then the system categorizes it as “D”. This is not acceptable and masquerading could have taken place.

**Practical Experience Sofar**

The Integritas System was initially rolled out in a test and prototype mode at the beginning of 2010. This was done with Version 1 mobile units which were developed during 2009. Two large classes were selected, and the units used throughout the year. The largest room could seat 400 students, and the whole class could be processed in Roll Call mode, using 5 units, in less than 50 minutes – the duration of the lecture.

The impact on the students and the lecturers was minimal, and the concept was widely accepted by students and lecturers.

During this period it became clear that the relevant lecturers were very interested, and found the information gathered very useful.

Because everything was in a test mode, no real statistics could be determined to see if class attendance had an effect on academic performance.

The logistics of managing the units can be organized in different ways. Up to now the University had a team of student assistants who managed the units, delivered them at the required lecture rooms, collected them afterwards and handled the downloading of the data.

Another model which is being considered in future is for relevant academic departments to get their own units and manage it themselves.

During the year, it was decided to start the development of Version 2, which incorporates many lessons learned from Version 1.

Version 2 will be rolled out at the beginning of 2011, in a much more controlled environment.

In 2011 commercial marketing of the system will also start.

**The Difference between Version 1 and Version 2**

The main difference between Versions 1 and 2 is related to the printer facility. In Version 1 the printer was an integral part of the unit, which made it more bulky and expensive. As the Roll call mode does not need the printer, and as this mode is used much more often than the Examination mode, it was decided to...
separate the main unit from the printer facility in Version 2. This made the main unit cheaper, and more cost effective as it did not contain a printer. The number of printer docking stations needed was then determined by the size of the examination rooms and not by the number of lectures taking place during the semester. Furthermore Version 1 had a touch screen, while Version 2 has a key pad. It was found that the touch screen did not work too well. The functionality of Version 2 was also expanded, for e.g. the Registration mode, which was not possible with Version 1. Because of interest in other types of applications, Version 2 included GPS functionality.

Potential use in Distance Learning Environments

Although this environment had not been investigated, some distance learning institutions have noted their interest. They are specifically interested in the Examination Mode, because in most cases students do write a physical examination at some stage. This examination can usually be written at remote places over the world, and often the invigilator does not know the students personally. The Integritas mobile units can therefore be used with great effect in this environment. This environment is presently been researched.
Conclusion

The University of Johannesburg is very happy with the project so far, and will over the next year or two roll out the system as widely as possible.

Several other inquiries had been fielded so far in using the concept in totally different environments, for e.g. in schools, in the medical environment and more. The original idea and subsequent development is seen as successful.
Abstract
Changing nature of today’s education and fast growing technologies paved way for e-learning platform. It has not only opened the doors for new medium of communication in learning but also to those who are underprivileged in access to education from various developing and third world countries. For e-learning mode of educational initiatives to succeed, organizations and educational institutions must understand the strategy that needs to be used at e-learning sustainability. The prevalence of bias and discrimination against the students graduating from the distance education mode compared to the traditional face-to-face continues to haunt the choice of online learning degree holders.

E-learning method of delivery is cost-effective and less-expensive than the traditional classroom instructions. It increases the economic benefits of education not only to the individuals but also to the institutions, organizations and society at large. This paper identifies the current role of e-learning, its benefits and limitations, key issues of effectiveness and employability in social context. It is done by extensive literature review of major e-learning journals from all over the world. The findings show the employability nature and social structure in recognizing the alternative mode of education. The Objectives of this paper is to highlight the key issues surrounding the e-learning effectiveness in regard to content development and delivery and to address the employability solutions of its user community.

Keywords: e-Learning, Effectiveness of Learning, Employability of e-learners, Learning Perspectives

Introduction
E-learning is a boon to the process of education and information providers, where a large number of students do not have access to a conventional campus programme for reasons of infrastructure, finances or availability of resources. E-learning is a new technology infused learning system that has transformed the way learning takes place across the World. This platform is an easy to use delivery system. It is the next generation technique that fully takes advantage of modern teaching methods to create a virtual classroom where students come together to learn from distinguished faculty and each other. It enables a collaborative and interactive environment for learning and includes mentoring, virtual classrooms, self-study, recorded presentations and shared experience.

The term e-learning consist of a lot more than online learning, virtual learning, and distributed network or web-based learning. As the letter “e” in e-learning stands for the word “electronic”, e-learning incorporates all educational activities that are carried out by individuals or groups working online or offline via networked or standalone computers and other electronic devices. E-learning functions on the principle of Affordability, Accessibility and Appropriateness across the distributed
learning. The Four C’s of Content, Collaboration, Communication and Computing are the basis on which e-learning disseminates education. It benefits the not-so-privileged class of the society or the economically challenged countries to provide education to all. E-learning has created a powerful model for teaching and learning. It provides distance education learners across the world to pursue studies in several disciplines. This new method of learning also brings in the critical issues of recognition and limitations in acceptability of its programmes in the social system.

To overcome the problems faced by its users, we have to constantly improve the quality of the online education programmes by providing a learning experience and quality of instruction that is eventually equal or superior to the traditional campus based programmes. The focus should be on students and on course plan and structure designed. So, the distance learning experience comes with flexibility and convenience from the student’s perspective with academic rigor.

**Objectives of the Study**

The objective of this paper is to apply an extensive analysis approach to highlight the role of effectiveness in E-learning, its benefits and limitations, key issues in employability and to evolve certain specific components thereof.

The main objectives of the study are:

- To examine and analyse the effectiveness of E-learning.
- To highlight the limitations of Content Development and Delivery system in E-learning.
- To offer suggestions and improve the status of Employability of the Online Degree holders

**Research Methodology**

In order to fulfill the objectives set and to know the e-Learning effectiveness, key issues in employment, the descriptive and analytical research method is adopted in the present study. When research is at an exploratory phase, qualitative methods are more appropriate since it is unclear of what needs to be measured. Qualitative methods include surveys, interviews, case studies, and observation. Before selecting appropriate methods, the strengths and weaknesses for each method were carefully examined and the more relevant methods were taken into consideration. Due to the exploratory nature of the paper, identifying the role and effectiveness of e-learning is a new but poorly understood phenomenon. The reason is that factors vary from organization to organization and the extent of influence varies from different types of e-learning implementations. As a result, cases of different research findings from an international perspective are considered as an appropriate method.

Literature review of Surveys and interviews are the common methods for data collection, which can make different types of contributions. In this study, research findings are chosen as data because of limitations on various factors. However, analysis of the literature on e-Learning yields distinctive and more detailed information. The suggestion offered in the final chapter of the research has emerged out of various inferences drawn from case studies and research reports.

**Literature Review**

A Literature review of various journals and research articles, reports and case studies across the globe from Far East Australia and New Zealand to China, South Asian Countries like Hong Kong, Malaysia, Singapore and India to African and European countries and United States of America can be categorized into e-learning effectiveness and limitations. The tertiary education sector today is a complex business and like others is cost-sensitive and eager to utilize the latest technologies to help streamline its operations.
With this in mind, many educators have turned to online e-Learning in hopes of incorporating a more cost-effective means of education. However, contrary to popular opinion, e-Learning can often lead to a rise in costs; in the short term at least. Nevertheless online e-Learning does help widen the scope of education and can prove to be a vital asset, provided it gives effectiveness. This concept of effective e-Learning may take years of development and evaluation to fulfill; a notion which sometimes eludes even the most reputable of online educators. It is an issue which plagues both the corporate and education fields and which is frequently aggravated by the numerous, often contradictory studies on the subject.

This paper will seek to yield the merits of these studies by conducting a review of literature available online, in order to decipher some of the better means of effectively evaluating, designing and managing e-Learning programmes in hopes to accurately envisage what the future may hold for the development of online education. An Extensive Review of published articles and journals on e-learning and uptake of Web-based education tools in both corporate and education sectors testifies that e-Learning practice has achieved an enormous momentum. It is expected to widen the scope of education and make a tremendous impact on the future of e-learning effectiveness.

**e-Learning: Role & its Benefits**

Internet and web technology is important in e-learning. Horton (2001) defines e-learning as “the use of Internet and digital technologies to create experience that educate fellow human beings.” Apart from web-based technology, e-learning seemed to require multimedia based courseware (Evans & Fan, 2002; Lahn, 2004). Therefore, it is clear that e-learning is centered on Information and Communication Technology (ICT). It is not surprising that Hamid (2002) and Lytras, Pouloudi & Poulymenakou (2002) mentioned that e-learning evolved around Information Technology to enhance the learning performance and efficiency. Furthermore, Evans & Hasse (2001) pointed out that technology is indeed needed in e-learning to educate the learner through the usage of two-way video, two-way computer interaction, cable, satellite downlinks and Internet.

E-learning is learner centric and puts the student at the core of an experience that combines distinct learning systems:

- **Self Learning:** High-quality self-learning material made available to the student in the form of digital format or made available online through e-books.
- **Learning at Contact Centre:** Face-to-Face instruction at the Contact Centre to cater to student’s doubts and problems on regular basis. In some cases, it is mandatory to attend the classes for practical orientation or purposes.
- **Learning by Active Participation:** Students submit the assignments and exercises through various means to the faculty to evaluate and also participate in the online class discussions and activities.

The innovation of e-learning thus shifts the education paradigm from ‘faculty-centric’ to ‘learner-centric’. It empowers students with anywhere, anytime access. Students will now experience a portable campus, carry along mentors and have access to all the online books and journals at their fingertips. Distance Education learning or online learning is a field of education that focuses on the pedagogy, technology, and instructional systems design that aim to deliver education to students who are not physically available. E-learning courses that require a physical on-site presence for any reason including the
taking of examinations is considered to be a hybrid or blended mode of course study. The role of E-learning is more structured and the teacher-student contact is better than the other modes of learning. Here, the student is assigned to a Learning Centre. The centre bridges the gap between the faculty and the student. It conducts counseling and tutoring in a classroom environment to provide fundamental knowledge on the course topics. This counseling and tutoring helps a student to further carry on with self-study. A number of technologies were tried to make e-learning more accessible and user-friendly. These efforts were also targeted at improving the quality of education in the distance mode. Slides and movies were at first thought to be a breakthrough, but they did not catch on as vehicles for distance learning. Instructional radio was also tried but, like slides and films, they did not represent a major change in the process of distance or correspondence courses. Many teachers feel the opportunities offered by distance or e-learning outweigh the obstacles. In fact, instructors often comment that the focused preparation required by distance teaching improves their overall teaching and empathy for their students. Through E-learning or Distance Education they can:

- Reach a wider student audience
- Provide opportunity to students who are unable to attend on-campus classes
- Involve outside speakers who would otherwise be unavailable
- Link students from different social, cultural, economic, and experiential backgrounds

**e-Learning Effectiveness**

Education is basic to human survival and it must be socially responsible and sustainable. While the market has some level of self-corrective mechanisms to meet the demands, it does not have the most basic democratic channels to meet the demands of its citizens. The development and use of any e-Learning programme or strategy represents an individual, organisational and social investment. For this reason, the effectiveness of e-learning should be evaluated. Without knowing the efficacy of e-learning strategies one cannot know the value of their use. Measuring effectiveness can constitute a useful tool to base decisions on the use of any e-Learning strategy.

In Shank’s article “Showing the Value of e-Learning”, she refers to methods which can be used to evaluate the effectiveness of e-learning training programmes. Nobel laureate Joseph E Stiglitz has rightly advised the countries to create a learning society by building human capital and fostering innovation to leverage the demographic divided. Innovation for sustained and inclusive labour market growth would be the intersection of the Employment, Employability and Education (3E) ecosystem. We have a unique value proposition to integrate all the 3 E’s and facilitate livelihood creation to millions.

The advent of the Internet in the 1990s opened the door to big changes in distance education. It became relatively inexpensive to deliver sophisticated course content via the Internet. This became the advent of online education. In this mode, the courses are delivered primarily via the Internet to students at remote locations, including their homes. An online course may need the students and teachers meet once or periodically in a physical setting for lectures, labs, or exams, so long as the time spent in the physical setting does not exceed 25 percent of the total course time. This mode has become more accessible to the students as e-mail and chat allows easy communication among students and the instructors. Web cameras provide the opportunity to enhance content with live or recorded images. The Internet also made the mechanics of online learning much easier to
implement. Students are able to see their grades instantly. Instructors were able to make global changes to lectures and reading lists as needed. Students could take tests and quizzes online, and in some cases, receive grades right away.

A free learning environment helps to ensure students to be accountable for their actions. Without a free and independent learning there is no debate on accountability of knowledge. Viewed from this perspective, a threat to e-learning comes from various sources of individuals to power houses to protect their interests. In contemporary years, increasing awareness has been given to student’s consciousness and protection of their interests which has led to the significance in Functioning of the Right to Education. The principles that apply to E-learning are:

- The learner has a right to know, and the educator has an obligation to ensure a free and timely flow of information about the system and its activities.
- The student’s access should be as open as the tactical situation permits, consistent with integrity and constraints

**Limitations of E-learning**

Learning and Education system are different in every country depending on its economy, polity, religion and culture. In underdeveloped countries, there are serious limitations on the right to education, whereas in Western countries, people enjoy great freedom in this sphere. Few decades ago, before the era of Communication Satellites, the traditional method alone was the medium of education all over the world. With the advent of communication technologies like Satellite and Telecommunication Networks, came the transnational Media and it brought the facilities of internet, local to global information system. In the new era, various platforms have been formed to raise awareness for open learning, defend the human rights and promote industrial reforms. In the wake of the rapid growth there arises the need for laws and regulations of the new medium. The legal infrastructure of a country determines the freedom of the New Media to perform its functions. Although E-learning has many benefits for students and organizations alike, it has limitations on content development and delivery.

**Technological Limitations**

The fundamental obstacle to the growth of e-learning is lack of access to the necessary technology infrastructure, for without it there can be no e-learning. Poor or insufficient technology infrastructure is just as bad, as it can lead to unpleasant experiences that can cause more damage than good to teachers, students and the learning experience. Other major technological limitations of e-learning include the in order to perform the tasks required by the system. Although, e-learning comes with a necessity of computer hardware, a minimum level of computer knowledge and benefits such as unlimited access all the time, this privilege does not seem to be feasible for some people in rural areas due to the inability to access Internet services (Kearsley, 2000; Rumble, 2000). In addition to the limited Internet coverage, technological barriers, such as limited bandwidth may hinder the learning process as the downloading of multimedia materials may take a longer time.

**Limitations of the Students**

E-learners are expected to be tech-savvy in handling Computers, Information & Communications. As E-learning is the product of the advanced technology, E-learners will have to learn new skills and responsibilities related to the technology. The flexibility and student-centered nature of e-Learning requires a high level of student responsibility. A successful E-learning
student must be well organized, self-motivated, and have good time management skills. The amount of effort taken by a student determines what he gets out of an E-learning program.

**Limitations on Course Material**

Poor design of the e-learning courseware is a major issue for learners and e-learning providers, as pointed out by Ivergard & Hunt (2005). A poor design “gave users a feeling of being stressed and badly treated by the system”. They further said that this causes users to feel frustrated and eventually stop learning. Courseware design should be tailored to the needs of the learners it should be easy to use and students should have easy access to guidance and information. Apart from technological limitations, poor writing skills may hinder communications. Akar et al. (2004) found out that learners have difficulties in understanding others when they communicate in an online environment.

**Other Limitations in e-Learning are**

- Difficulty in ensuring academic honesty in an online environment (Kelly & Bonner, 2005).
- “Unlimited learning” stresses both learners and tutors, as there are too many online sources (Grooms, 2003; Willging & Johnson, 2004).
- Difficulty in conducting synchronous learning due to different time zones (Rourke & Anderson, 2002)
- Concern about the reputation and accreditation status of an e-learning institution (Evans & Haase, 2001)
- Learners may still have a negative perception of e-learning (Homan & Macpherson, 2005)

**Findings and Suggestions**

Computer underlies most innovation today, from biotechnology to cinematography to energy and climate change. A diverse group of students can be inspired, through engaging and exciting curriculum, to develop the next great computing innovations that will change the world and expose all students to the skills they need to create and discover new things. As the number of students graduating from online degree programs in different disciplines increases at an astounding rate, so do concerns about the potential bias and discrimination against online degree recipients. While considerable research has established the educational equivalence of face-to-face and online courses, little knowledge exists among the employers about the perceptions of academic quality of online students. Currently, most employers favour students with degrees from traditional method programs over their online counterparts. This potential bias and discrimination creates a dilemma for students, as they complete their degree but subsequently hit a road block in employment that prevents them from advancing in their career and/or education. Research findings examine the bias and discrimination against online degree recipients, followed by implications of online degree programs and on how to address this issue.

Perhaps one of the most researched variables is the difficulty in finding employment after the completion of the course. Other factors in the literature indicate that working adults are busy individuals who have many obligations, especially towards their family or work. Some studies indicate that learners have family commitments. Since these learners are busy, they may find it difficult to find time for their studies and may eventually stop studying as we can see from the findings of Hiltz (1997) and Pierrakeas et al. (2004). These suggest that e-learners don’t have much time to study. Another limitation that is related to time is self-discipline. Working adults are learners who might lack the self-discipline needed to learn while handling work and family commitments, as discovered by Willging &

All the e-learners have different assurances; hence they need self-discipline in order to be successful in e-learning. Preparatory training is necessary for new learners; Abouchedid & Eid (2004) found out that some students lack the basic e-learning skills. Therefore, they may need a preparation course for e-learning (Bird & Morgan, 2003). While not directly related, one finding stated that learners need significant changes in order to adapt to an online environment. Collins (2002) also found out that learners drop out because of not being knowledgeable enough.

A surplus amount of research studies have investigated the educational equivalence of the online instructional mode to the traditional face-to-face classroom format. An examination of the relative literature reveals that the largest body of findings reports no significant differences in learning outcomes between online and face-to-face students.

Russell (2001) cites over 350 published studies asserting that student outcomes cannot be differentiated on the basis of instructional mode. While research has clearly established the educational equivalence of online to face-to-face courses, concerns persist about the academic quality of students completing online degree programs. E-learning should create awareness and educate the masses by:

- Providing information and advice to the students and learners about their rights and responsibilities;
- Helping them to find employment to resolve discrimination problems in industry;
- Investigating complaints about unfair and biased procedure in selection process;
- Prosecuting unscrupulous online activities by regulating and licensing the education sector;
- Developing legislations that protect the students from the changing nature of society.
Conclusion
The role of the Education in a society primarily depends upon the character of the society and its impact on the freedom it enjoys, its access to the people and its credibility and acceptability. It requires an informed public opinion for its effective operation, since the public becomes the ultimate controller of social goals, laws, and affairs of the society. The spread of education and the development of newspaper, radio and television have made it possible for more people to be well informed about issues and events in their society. In fact, the Online Medium can serve as a vital link between the people and those exercising power at various levels and ensure responsive governance. To address the delicate balancing of traditional method and new education system is also a question that needs to be answered. As indicated by the results, a subtle bias does exist against online degree recipients, as the students who pursue the online degree itself do not prefer to indicate publicly the online aspect of their education. While this preference alone provides no insight into the reasons for their choice, the simple fact that the majority of students prefer not to disclose either consciously or subconsciously, of the potential negativity associated with an online degree employment.

Currently, most online degree programs are structured to imitate their face-to-face counterpart. But it may be this focus on imitation, rather than capitalising on the unique opportunities afforded by technology mediated education, that contributes to the perceived deficits in online learning. To address bias against online degree programs, online learning proponents must shift models of e-learning from imitation to dedicated design of online programs to address the unique challenges inherent in e-learning. This method is also seems unsuitable for those individuals without self-discipline. It requires a lot of self-motivation, mostly because e-learners are considered to be busy working adults. Besides, e-learners also need preparatory training especially in ICT skills in order to get used to e-learning environment. On top of these problems, e-learners also face some problems for instance necessity of computer resources, bandwidth problems, lacking physical interactions and limited recognition of e-learning courses. These facts show that E-learning is still lacking certain critical aspects in learning at the moment but the e-learning providers can consider these limitations to improve e-learning services. Research in this area in future can enhance the scope of e-learning to a truly global perspective.
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Abstract

Does collaborative learning through “online” platforms help employees perform better? Instead of the regular classroom sessions or eLearning programmes, it is suggested that group based knowledge sharing platforms such as forums, live video webcasts; social media tools can help employees learn more about their jobs and improve their work performance. The paper proposes to understand the scope, methodology, and the challenges involved in the creating an online collaborative learning environment at workplaces. The paper also explores the tangible benefits that accrue due to the emotional bonding and interaction between the various participants during the course of their interactions. The paper will in addition provide a framework to measure the effectiveness of online media in promoting collaboration and team building in work spaces.

Keywords: Collaborative learning, social learning, situated cognition, distributed cognition, teamwork, remote collaboration, productivity, Content, community and Collaboration, virtual worlds, wikis, workplace effectiveness

Introduction

Human beings have been collaborating from millennia to solve problems and share experiences. Probably, the first ever collaboration was when cavemen shared their insights on fire-making through various paintings.

But the question is “Does collaboration between individuals aid learning, or is it only a means of sharing information and experiences?” Researchers in the last century have tried to understand learning processes in social situations through various studies. Most notably, followers of Vygotsky’s sociocultural psychology have tried to understand the role of social situations, symbols, ideas, and shared meanings in aiding the learning processes. There have been many other researchers who have talked about this in length. Hutchins says:

“The emphasis on finding and describing “knowledge structures” that are somewhere “inside” the individual encourages us to overlook the fact that human cognition is always situated in a complex sociocultural world and cannot be unaffected by it.”

Researchers have called the sharing of knowledge or distribution of knowledge in groups as distributed cognition. Distributed cognition proposes that human knowledge and cognition are not confined to the individual. Instead, it is distributed by placing memories, facts, or knowledge on the objects, individuals, and tools in our environment.
“An individual’s working intelligence is never ‘solo’. It cannot be understood without taking into account his or her reference books, notes, computer programs and data bases, or most important of all, the network of friends, colleagues, or mentors on whom one leans for help and advice.”

Another term that describes learning by doing is situated cognition. Situated cognition posits that knowing is inseparable from doing. The situation cognition theorists argue that all knowledge is situated in activity bound to social, cultural and physical contexts.

Collective Intelligence

George Por asked how group of individual intelligences become truly collective intelligence. He says, “Collective intelligence is a distributed capacity of communities to evolve towards higher order integration and performance through collaboration and innovation.”

George Siemens mentioned in his ‘Connectivism’ theory -

“Learning and knowledge rests in diversity of opinions.”

And,

“Learning is a process of connecting specialized nodes or information sources.”

Collaborative Learning

These theories in essence lead us to state that learning happens through collaboration between individuals who share their experiences and knowledge for common good.

Let’s look at some definitions of collaborative learning.

Collaborative learning is a situation in which two or more people learn or attempt to learn something together. More specifically, collaborative learning is based on the model that knowledge can be created within a population where members actively interact by sharing experiences and take on asymmetry roles.

Another definition: “Collaborative Learning is a relationship among learners that requires positive interdependence (a sense of sink or swim together), individual accountability (each of us has to contribute and learn), interpersonal skills (communication, trust, leadership, decision making, and conflict resolution), face-to-face promotive interaction, and processing (reflecting on how well the team is functioning and how to function even better).”

People share their ideas, experiences, feelings, information, and within this process of exchange they come to the understanding of what is valuable and acceptable for the other members of the group, and for the group on the whole.

Collaborative learning assumes the group work of learners that collaborate together to solve some existing problem, or unknown issue.

Collaboration necessitates that participants are engaged in a co-ordinated effort to solve a problem or perform a task together. Jay Cross has equated collaborative learning to informal learning.

The salient points of collaborative learning are:

- Participation
- Socialization
- Discussion
- Reflection
- Collaboration for self-development

Human Computer Interaction

Interestingly, it is only when computer based learning started that researchers started focusing more on the social or collaborative nature of learning. Human computer interaction has been one of the most thoroughly researched subjects and has spawned diverse fields of study such as
contextual design and user interface design and so on. However, the interesting by-product of research in Human-Computer interaction has been the study of use of computers in collaborative work.

**Computer Supported Cooperative Work**

The term coined specifically for use of computers in work related purposes is computer supported cooperative work (CSCW).

Some other researchers such as Carstensen and Schmidt say:

CSCW addresses "how collaborative activities and their coordination can be supported by means of computer systems." CSCW focuses on the study of tools and techniques of groupware as well as their psychological, social, and organizational effects.

Computer supported cooperative work has also been used interchangeably with the term collaborative working environment (CWE).

**Need for Collaboration in Workplaces**

There has been a greater emphasis on collaboration at workplace because of the changing nature of work. In today's world, the structure, content, and process of work have changed.

Work is now more:
- Cognitively complex
- Team-based and collaborative
- Dependent on social skills
- Dependent on technological competence
- Time pressured
- Mobile and less dependent on geography

Some of the other salient points about changing dynamics of teams in organizations are:

<table>
<thead>
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<th>From</th>
<th>To</th>
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<tbody>
<tr>
<td>Fixed team membership</td>
<td>Shifting team membership</td>
</tr>
<tr>
<td>All team members drawn from with</td>
<td>Team members from outside the organization</td>
</tr>
<tr>
<td>Team members are dedicated 100% to the team</td>
<td>Most members are members of multiple teams</td>
</tr>
<tr>
<td>Team members are co-located organizationally and geographically</td>
<td>Team members are distributed organizationally and geographically</td>
</tr>
</tbody>
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Many organizations therefore are striving to be learning centers. They are trying to create conditions in which employees learn through formal training and through relationships with coworkers. This relationship for sharing experiences and learning is also known as informal learning. Through the learning relationships employees solve problems together, share insights, and learn from mistakes.

**Limitations of Traditional Training Methods**

A collaborative working environment (CWE) is a framework that allows people to interact with each other in organizations for various organizational, technical, and social issues.

Much has been written about traditional training methods, especially in the context of changing times. Formal training methods have been criticized for not doing enough to solve work related problems.

However, we need to take a middle ground. Traditional training methods are useful in disseminating procedural and policy changes. They are useful agents of communicating change to the employees. They act as corrective measures and are excellent way to bring many people from diverse backgrounds
together at one place. In that sense they act as platform for greater sharing of knowledge and expertise.

However, their greatest limitation probably is that they don’t solve problems of here and now. An employee may be facing some issue at his workplace. It could be related to some technology or some work practice. It has been observed that employees tend to ask their peers for help rather than look up manuals. They sense comfort and trust in such relationship. Also, most often their issues get resolved.

eLearning has also taken the route of traditional learning models. The only difference probably is that in eLearning there is no tutor and probably greater flexibility in choosing topics of interest. In that sense it is presumed to be learner driven.

Some researchers have taken the opposite point of view. They imitate the classroom training material, except for animations and use of examples. The courseware or content based approach can be used as first step of the cognitive ladder where learners gathers the required explicit knowledge and base materials before entering the opinion driven co-creation of knowledge, where they engage in meaningful learning in shared contexts.

In this context, the need for faster mode of learning and problem solving has been necessitated.

**Advent of Web 2.0**

Today, learners, to a large extent, and training professionals, to a certain extent, are increasingly realising how the World Wide Web can be turned into a global platform to effectively connect to and harness the available collective intelligence online.

As seen earlier, most employees rely more on the informal situations to tackle their daily issues rather than enrolling in some class or taking up some eLearning course.

The advent of newer web technologies commonly referred to as web 2.0 has accelerated the shift towards more participative and collaborative learning.

**The Social and Collaborative Web**

The key aspect of Web 2.0 systems is the concept of social networks, community, collaboration and discussion. Through the web 2.0 systems such as wikis, blogs, and other social media, people are interested in greater communication and participation. This communication is a key part of understanding, learning and creativity.

The web 2.0 systems are gigantic in scale and people are increasingly participating in the ever expanding communication structures. This harnessing of the collective intelligence creates systems which have more and better information than any one person could generate; it provides the "wisdom of the crowds."

There are a number of different types of collaboration that can occur in Web 2.0 systems:

- **Content-based**—People gather and collaborate around a piece of news or content, typically in a blog or a spaces-type environment.
- **Group-based**—People gather around an idea or interest such as a hobby and discuss it in forums.
- **Project-based**—People work together on a common task or project such as a development project, a book, or even something as large as an encyclopedia using wikis.

All three types of collaboration are supported by Web 2.0 systems. We are interested in project based collaboration and its effective usage at workplace.

**Collaborative Learning at work**

In organizations, tacit knowledge is most important factor for success. This comes through experience of working on large number of projects. It also depends on the
company’s strategies and management practices. In a collaborative atmosphere, knowledge is disseminated through listening to a diverse range of opinions. Informal social networks at workplace are not uncommon. Peers interact on regular basis for sharing issues, experiences, and knowledge. In organizations, facts and figures are the primary tools of judgment. However, management also rely on grapevine and informal means of communication to support their decision making process. The process of creating and disseminating knowledge through diverse opinions and correlated ‘just-in-time’ hypothesis is very important at workplaces. The organizational differentiation factor depends on opinion-based knowledge pool creation and dissemination rate outside classrooms or even content driven e-Learning infrastructures.

Peter Drucker, the eminent management writer says “Modern work is largely collaborative. Most white collar workers spend large portions of their time in meetings. Increasingly, jobs are being organized by teams...a representative work group has fewer than ten members and works on their task for a period of weeks or months...collaboration requires face-to-face interactions.”

Gary Olson, University of Michigan Collaboration Lab says “The primary unit of organizational productivity is shifting from the individual to the team.”

**Tools for Collaboration at workplace**

Given that people in organizations are collaborating for diverse projects, there is a great need to use the right tools at the right time. The tools that can be used for collaboration at workplace can be aggregated based on the time and place of collaboration. The Matrix is given below:

<table>
<thead>
<tr>
<th></th>
<th>Same Time</th>
<th>Different Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Same Place</strong></td>
<td>Face to Face Interactions</td>
<td>Continuous Task</td>
</tr>
<tr>
<td></td>
<td>Decision rooms</td>
<td>Team rooms,</td>
</tr>
<tr>
<td></td>
<td>Single display groupware</td>
<td>large public display</td>
</tr>
<tr>
<td></td>
<td>Shared table</td>
<td>Project management…</td>
</tr>
<tr>
<td></td>
<td>Wall displays</td>
<td></td>
</tr>
<tr>
<td><strong>Different Place</strong></td>
<td>Remote Interactions</td>
<td>Communication + Coordination</td>
</tr>
<tr>
<td></td>
<td>Video conferencing, instant messaging,</td>
<td>Email, bulleting boards, blogs, asynchronous</td>
</tr>
<tr>
<td></td>
<td>chats, virtual worlds, shared screens,</td>
<td>conferencing, group calendars, workflow, version</td>
</tr>
<tr>
<td></td>
<td>multi-user editors</td>
<td>control, wikis</td>
</tr>
</tbody>
</table>

The use of tools for collaboration at workplace tells us that they are reducing the learning cycle time and also the dependence on the traditional modes of learning. Mike Bogle resonates with these thoughts when he writes: “While institutions continue to rely on huge, monolithic systems that inhibit user freedoms and personal ownership, free and publicly available tools like wikis, blogs, social networking sites, instant messaging clients, video sharing sites, web conferencing tools and virtual environments facilitate immediate access to peers in extraordinarily flexible and in customisable ways. It is little wonder then that shadow systems of learning and interacting have
begun to develop outside of recognised institutional channels.”
Jay Cross of Internet Time Group wants to create a new learning and development future with his prediction when he says “Wrenching changes in business and society accompanying the global transition from the industrial age to the network economy will kill off much of the training and education programs as we have known it. In its place there will arise a more natural approach to learning through collaboration and sharing. There are great times ahead, an era of fulfilling, bounteous learning unprecedented in human history. However, the journey to this Promised Land will be brutal and unforgiving for people and organizations that resist change and lobby for “back to the basics.” But Jay Cross also agrees in his Internet time group’s blog elsewhere that other means of learning will have its place alongside collaborative informal learning.

Framework
Increased pace of global collaboration has meant that people from diverse geographic regions have to team up for executing projects. This has paved way for increased use of virtual teams. An integrated collaboration environment (ICE) is an environment which allows the use of technology and resources for virtual teams to deliver their work. Such environments allow companies to leverage a number of benefits by using their existing network of computers for group and personal collaboration. In an Integrated Collaborative Environment (ICE), there are several advantages. They are use of:

1. Collaborative software that helps improves the performance of teams by supporting the sharing and flow of information. The software allows for real-time collaboration and conferencing.
2. Workflow systems that facilitate the automation and management of business processes.
3. Documentation management systems to manage a document through all the stages of its processing.
4. Peer-to-peer collaboration software permits users to communicate in real time and share files without going through a central server.
5. Knowledge management systems that support the capture, organization, and distribution of knowledge (know-how).
6. Social network systems that link people to others they know and, from there, to people their contacts know. It is a way to leverage personal and professional contacts.

Collaborative learning environments support cognitive, social, motivational and affective processes of learning. For example, shared workspaces and communication tools can provide a natural setting for detailed discussion, knowledge transfer, knowledge dissemination and host of other demanding cognitive activities. They can also enable sharing and distribution of ideas and work that helps brings down cognitive load among the participants. Collaboration also helps the participants to think freely and use their creativity in such as to function as collective intelligent community.
However, in order to reach these benefits, several pedagogical and contextual prerequisites for successful collaborative learning situation have to be fulfilled:
- space for misunderstandings and negotiations
- need for collaboration (real group tasks)
- reaching mutual understanding, shared values and goals (common ground)
- cognitive conflicts instead of social conflicts
• cognitive diversity
• symmetry of knowledge and status
• group commitment and motivation

Challenges in Creating Knowledge Repositories

• People do not realize how important the knowledge they possess actually is and therefore do not submit it to the knowledge repository.
• People believe that “knowledge is power” and are reluctant to share what they know with others.
• People do not have time to submit information. Technology can help with this problem. By being closely tied to existing working practices, knowledge management applications transparently capture and store information in the repository.

Measuring the Effectiveness of Collaboration Efforts

As most of the tools used for collaboration are inbuilt with tracking and version control features, it is not very difficult to measure the effectiveness of such efforts.

There are many online project management tools that are already being used for project management and version control. Basecamp is one such example. Teams can upload their documents, have dialogues or communications, and set up meetings using the online software.

Forums that are universally used for informal chit chat and knowledge sharing can be effectively used in collaborative environments. The forums have “threaded” based messaging feature that helps track all the message under one topic.

During projects, participants of the project can raise queries in the forums that can be answered by the senior members of the team. These can later act as content repository as they have the self-archival mechanism.

Similarly, all chat sessions and discussions using web collaborative technologies can be archived for documentation purposes. Documenting the discussions would help the teams to enhance their knowledge and skills and apply them at appropriate times.
Conclusion
We are in tumultuous times. Rapid changes in technology have meant that corporations need to be ever vigilant about changing trends. As suggested in the paper, collaborative technologies go a long way in helping organizations realize long term growth through healthy learning environments.

Traditional learning paradigms will have their place but collaborative learning technologies will continue to evolve rapidly and make learning in the 21st century a truly enjoyable and meaningful experience.
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Can Anyone and Everyone Teach? A Closer Look at Challenges of Learning, Teaching and Standards in Contemporary Times

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Abstract
The traditional definition of the teaching/learning environment has changed over the last two decades especially with the introduction of virtual and technology-based learning. Invariably too, teaching has ceased to be defined only by the traditional formal encounter that occurs between teachers and learners in a closed and controlled environment called the classroom; at designated time slots called class periods. Often teachers contend with the frustration of teaching students who feel bored and distracted to sit for an hour or more listening to the voice of the teacher when they would rather be ‘connecting’ with friends online with their I-phones and blackberries’. Often teachers spend much of the class time trying to get students to pay attention to the concepts and skills needful for application to real life situation especially in the contemporary world where functional education is coveted. Thus teachers are often frustrated and demotivated. In a bid to meet students at their own level, teachers often become detached from students; they strive to just finish the course content and prepare course materials in a way to encourage the barest involvement with complex issues.

This paper looks at how to reconcile the traditional view of teaching/learning with the contemporary view of knowledge acquisition. It sets out to delineate the qualities of a professional teacher, how teachers can be more pragmatic in their pedagogical approach to teaching in the light of the new trends in technology and the proliferation of social media. It also highlights the ‘human connection’ in the teaching and learning environment.

Keywords: Professionalism, Standards, Ethics, Technology, Contemporary, Methods Teaching and Learning

Research Objective
Professionalism and quality standards are seen as key factors in achieving success in any endeavor. However in recent years both have been largely ignored in the pursuit of new paradigms for learning and teaching. The question arises if the goals of education can be attained in contemporary times with continuous negligence of these basics. Can technology much as relevant and overarching as it has become in the present time achieve the desired goal without recourse to teachers’ commitment to professionalism in their practice? How do teachers view professional practice and their role as professionals vis-à-vis the learner-centered functional approach to education being advocated in the present time? How do administrators ensure professional standards in recruiting? This paper looks at the relationship between teacher professionalism, pedagogical methods and practices that can enhance learner-centered teaching. It also looks at how professionalism can impact use of technology in instruction.

Methodology
Study Design
The study is designed to collect qualitative and interpretive data that could be beneficial in shaping opinions and enriching the debate on the issue of professionalism with the view to encourage change or improvement in professional practice, commitment and standards, and policies concerning recruitment and ultimately maximize students’ learning. The researcher conducted a pilot study on Professional Standards in teaching at Abu Dhabi University, United Arab Emirates in November/December 2010.

The Sample

The study involved 18 faculty members (who will be delineated as participants in this paper) drawn from different colleges in Abu Dhabi University, United Arab Emirates. The sampling methods used include three methods identified by Stringer (2008, p.42) as maximal variation sampling (people with diverse perspectives), typical sampling (people who are typical of faculty in a university) and theory or concept sampling (people with particular knowledge related to teaching). The original design was to start with a pilot study involving a limited number of faculties. When invitation was sent out to 30 proposed participants detailing the nature of the study and the objectives, only 18 faculty members willingly accepted to participate in the study. The researcher is aware of the need to maintain ethical standards; therefore did not coerce any one to participate. The identities of the participants will remain anonymous throughout the discussion in this paper. Nonetheless, this sample can be said to be representative of faculty members in the university as all the colleges are represented in the sample.

Data Collection

a. The researcher designed a set of interview questions with subjects ranging from length of teaching time; certification or professional training in teaching; relationship with students; relationship with colleagues; personal professional development; teaching methodology and pedagogy to use of technology in contemporary teaching (see Appendix A). Some of the participants could not be interviewed face to face due to time constraints and distance (The researcher teaches at the Al Ain campus of Abu Dhabi University while some of the participants teach at the Abu Dhabi campus). After initial phone conversations, some of the participants expressed concern over the possibility of the researcher tracking them down for an interview. They rather preferred to have the interview questions sent to them via email and they also sent their responses via email. The researcher followed up responses via phone calls, face to face meetings and emails. The interview method is appropriate because the study is essentially a qualitative or interpretive research where the ‘gut’ feelings of participants can only be revealed through an open-ended opinion-like and unlimited response data collection method. The responses could shed more light in formulating survey questions for an extended study.

b. The researcher will review the International Professional code of ethics of the teaching profession as a benchmark for standards of professionalism.

c. Stringer (2008, p.81) posits “The literature is another source of information, together with perspectives of stakeholders…” In this light, the researcher will review the literature of earlier studies done on teacher professionalism in order to provide the basis for arguing that more than a need to embrace new
technology and paradigms in learning and teaching, teacher professionalism still remains a key factor to the success of any new methods. It will focus more on the previous literature that discuss the various factors that can assist teachers become more pragmatic in delivery methods and personal professional development in order to enhance learning. The review of previous literature will be embedded in the discussion of findings of the study and the professional code of ethics.

**Data Analysis**

As mentioned earlier, this study is not prescriptive, rather it is suggestive so opinions and perspectives of participants will be of paramount importance. As Stringer (2008) notes, there is a need to use data analysis methods that “capture participant perspectives” in qualitative research. Therefore responses of the participants will be categorized or coded into sections or subsections that will form the major headings of discussions. As the review of literature is part of the data for the paper, the analysis will mesh responses of participants with review of relevant literature. However, the voices of participants will be prominent by using their actual words, phrases and sentences.

**Definitions**

Teacher Professionalism can be defined as

1. “the ability to reach students in a meaningful way, developing innovative approaches to mandated content while motivating, engaging, and inspiring young adult minds to prepare for ever-advancing technology” (http://students.ed.uiuc.edu/vallice/teacher Professionalism.html).

2. “Professionalism is a deliberative developmental experience” Armstrong, Henson & Savage. (2009)

3. “To be sure teaching-like the practice of medicine-is very much an art which is to say, it calls for exercise of talent and creativity. But like medicine, it is also a science, for it involves a repertoire of techniques, procedures and skills that can be systematically studied, described and improved. A good teacher, like a good doctor, is one who adds creativity and inspiration to the basic repertoire (Silverman (1966) in Aggrawal (1995, p. 37)

4. Professionalism in teaching is the art of joggling many responsibilities with the skillful precision commitment, and enthusiasm of an artist. Professionalism in teaching is the science of academic progression through dynamic contribution and involvement in professional teaching and learning activities. It is the commitment to continuous learning about the profession itself through achieving higher credentials, more specialized training and education. Professionalism in teaching is an art and a science that one develops when applying theory to practice, creating knowledge as well as possessing it, being able to identify and solve teacher-student related problems, and being able to reflect on one’s practice to admit errors and correct them. (Participant #9)

**Introduction**

Arguably, recent proliferation of colleges and universities has given rise to mass recruitment of resource persons or teachers. There has also been an increase in the commercialization of education and private ownership of academic institutions. These
give rise to question of standards and professionalism that seem to have been largely ignored. The increasing use of e-learning and mobile learning methods have also raised questions of whether teachers are really relevant, whether standards are important, whether professionalism is important and if teaching is really an exclusive professional field.

These assumptions raise questions of standards, ethics, professionalism, expertise and excellence that may impact learners positively or negatively. One would repeat the question asked by the topic, can everyone and anyone teach? The significance of this question and the response to it are important considering the overarching influence of teachers on students’ lives whether in traditional informal setting type of education or the formal classroom setting or even the mobile e-learning age we seem to have been caught up. Education has become more learner-centered and the computer axiom of “garbage in, garbage out” cannot be more apt than in the present time.

It might also be pertinent to ask the following questions: Why is teaching an all-comers affair; why are school administrators recruiting teachers who wield so much influence over young minds without recourse to professionalism and standards? Yet this is a profession entrusted with so much social function. It is not surprising then that some scholars would argue that teaching is not really a profession. What then is a profession, what standards and expectations characterize professions and how does society view practitioners of professions or professionals?

**What is a Profession?**

A profession can be seen as an occupation or particular job area that has certain distinguishable characteristics that mark out people who practice in it as professionals in that area. These include among other characteristics: Esoteric body of knowledge and intellectual training program, Licensing and certification, formal Organization membership, Code of ethics, high social Function and autonomy. However, for the purposes of this paper, four are most relevant.

1. **Distinct Body of knowledge and Intellectual training program:** Each professional studies distinct and specialized courses containing esoteric information at a higher level of education that would equip him or her with the skills and abilities to practice in particular job fields. This study involves an intellectual program that spans a number of years and predominates any training of physical skills.

2. **Licensing and certification:** Practitioners of professions are expected to be certified fit by the award of a certificate or a license that would enable them practice. The possession of this certificate or license further authenticates the practitioner and increases public trust in the profession. The possession of a license or certificate also helps in professionalizing the Profession.

3. **High Social Function:** Society looks up to professionals to perform some services essential for its survival. So practitioners of these professions are invested with public trust to serve society through the faithful and conscientious practice of their professions demonstrating loyalty to public interest causes at all times. For teaching profession particularly, society looks up to its members to pass on the knowledge that will continue to perpetuate it from one generation to another.

4. **Code of Ethics:** Most professions generally have codes of ethics. This is a set of rules (written or implied) that provides a guide on ethical conduct in
the process of carrying out duties in the professional area. It stands between law, moral conduct and etiquette. Members of a given profession must adhere to the code of ethics of their profession as it establishes acceptable standards required for practice in the particular profession. Among other things, it also spells out penalty for misconduct, process of judging conduct and process of appeal in case of wrongful accusation of misconduct (Shaw, 2008)

Review of Related Literature and Discussion of Findings

Teaching as a Profession

One can argue that teaching fulfills much of the requirements for a particular job field to be designated as a profession. One needs to undergo rigorous and long intellectual training in some subject areas in particular but also in some special skills to learn the methodologies for transferring knowledge to another. For the teacher, this intellectual training is continuous as methods are ever changing, new paradigms of learning and teaching are ever coming up, standards and new body of knowledge are ever dynamic, methods of assessment are ever changing and society and learners remain dynamic and pragmatic, learners are no longer concede all the knowledge to the teacher in the all confining classroom; they have new ways and tools of evaluating ideas and most importantly, technology is ever developing at new and breath-taking speed and at the same time empowering.

In contemporary times, the issue of licensing and certification seems not to be taken very seriously by both teachers and administrators. Many teachers especially at the tertiary level have certification in their particular subject fields but not particularly any certification to teach. This may have given rise to the view that no particular sets of skills are essential for success as a teacher. For an example, in the data collection for this paper, 6 out of 18 participants have no certification to teach but have doctorate degrees in their particular fields of specialization. One of the participants asserted that training in teaching methods is not relevant to teacher professionalism, “Training depends on the subject area that you teach. Engineering, business and computer science are more practical oriented courses and there would be no need for teaching experience.” (Participant #8) However, some of them would welcome any short term training that would enable them enhance their methods for more effectiveness.

The assumption that possessing the highest degree in subject areas qualifies one to teach can only harm the interest of the students at the most. In certain cases, one who has not gone through any formal training may not have the patience needed to guide learners to learn. The one may not have the motivation to improve methods especially as he or she is not conversant with the pedagogies and methodologies and even the proper assessment tools to measure learning. It is not a wonder then that for some teachers, assessment is seen as an end in measuring students’ learning not a means to change pedagogy, improve methodology and ultimately enhance learners’ understanding. Sometimes too, such teachers tend to see students’ poor performance only from the point of view of students’ abilities and distancing themselves from students’ learning disabilities and low performance. It might also follow that such teachers do not review materials or update materials and present them in a way that would suit the present technological advancement in learning; interaction with the students end only within the classroom leaving gaps that could have been filled with mobile learning technology outside the classroom.
The increasing apathy for the teaching profession might be blamed for a lack of interest in professional training and certification. Increasingly, teachers are losing the traditional and revered position they had always commanded among students, parents and the community. Ringrose (2001) laments this trend:

*Teachers are losing authority, students are losing respect, and the professional life is intermingling with the personal life. In the past, the teacher would have full authority over his or her pupils/students. The students would have to show absolute respect for their teacher....Today’s students seem to be less and less respectful of their teachers.*

Armstrong et al (2009) also notes that teachers are poorly paid. These and other factors may have eroded respect for the profession and many people do not find it appealing to undergo any training “just to teach.” Moreover, if professional training and certification are not essential for hiring then who needs them? However, the different remedial measures embarked upon by many universities and colleges to bridge this gap by updating their staff attest to the acknowledgement that there is deficiency when formal training is neglected.

Another relevant characteristic to professionalism in teaching is high social function. From very traditional societies be it in the ancient Greek states with its philosophical outlook towards life or folkloric societies to the modern and contemporary digital “in-the-now” society, transmitters of knowledge have always been viewed from that awe-inspiring lenses reserved for agents of change. From cradle to grave humans are involved with learning and there are always teachers to fill the various gaps in the line of development.

Armstrong et al (2009) rightly capture the pervading influence of teachers:

*Teaching is often labeled society’s “essential” profession. As a teacher, you have impact on the most valuable resource in society, the youth of the nation. It is not unusual for individuals who are honored for their contributions to society to single out a teacher who had an impact on their lives. Without good teachers, there would not be good engineers, physicians, attorneys, scientists, musicians, politicians, and others who contribute to the overall health of the society (p.4)*

Teachers are recognized at agents of change and every age or generation seeks ways to involve teachers in contemporary issues. It is also no wonder that even in the present time, society is concerned with ways to involve teachers in the use of technology for instruction. There seems a realization that when teachers embrace and develop technology for positive uses, much of the negative impact of technology can be effectively checked. Teachers will channel learners’ capabilities towards proper use and away from abuse of technology. It is no wonder then that almost everyone in society is involved in trying to make policies that concern teaching. When it comes to issues that have to do with teachers and teaching, almost every voice is heard. Some of the times this close scrutiny and all-comers approach to matters concerning teachers and teaching work at across purposes with best practices as noted in this statement in the National Education Association (NEA, 1975) code of ethics:

*As long as teaching remains a profession where isolation is the norm, where the knowledge that practice comes from outside the classroom, and where the quality control officers are removed from the classroom, teaching will be more like a blue collar job than an intellectual professional pursuit. By changing the role of teachers, we can also change the teaching learning process in our schools. For example, in the most successful schools, teachers are more likely to discuss teaching and learning with one another, to*
critique each other’s work, to collaborate on the preparation of materials and to jointly design lessons.

Most especially, the conduct of a teacher’s life and job are scrutinized with microscopic lenses to detect anything that might be perceived to influence learners negatively.

Code of ethics is another characteristic that distinguishes teaching as a particular profession. Shaw (2011, 2008, p. 13) explains that professional codes as “rules that are supposed to govern the conduct of members of a given profession”

However, as important as code of ethics is to practitioners of the profession, 6 of the 18 participants of the study have never read any version of the code of ethics on education or the teaching profession. In fact, 4 want copies of the code of ethics while two claimed that it is not relevant to their success as teachers. Participant #2 has taught for “about 25 years” but was emphatic in refusing to read code of ethics. “No, I would not like to read one. There may be issues of contract regarding my work as a teacher, but doing your job to the best of your ability is a given for most professionals....”

However, other participants support the idea of one knowing the code of ethics of their profession as a prerequisite for doing their work professionally. Participant #9 says “I believe it is very vital for any individual belonging to any profession or institution, let alone professionals, to know the principles and ethical guidelines they are expected to respect and abide by. A code of ethics reminds people of their professional obligations towards themselves, their institutions and profession, and to their colleagues. Thus, to the community at large”

The preamble of the Code of Ethics of the Education Profession of the National Education Association (NEA, 1975) America captures the enormous responsibility placed on the shoulders of teachers:

The educator recognizes the magnitude of the responsibility inherent in the teaching process. The desire for the respect and confidence of one’s colleagues, of students, of parents, and of the members of the community provides the incentive to attain and maintain the highest possible degree of ethical conduct. The Code of Ethics of the Education Profession indicates the aspirations of all educators and provides standards by which to judge conduct.

Caring Beyond Instruction

The NEA code of ethics summarizes its concern in the standards and practice of the profession to three principal areas, the learner/student, the profession itself and the professional himself. In the spirit of the recognition of education as learner-centered, the code of ethics situates the primary expectation in the commitment and relationship of the teacher to the learner:

The educator strives to help each student realize his or her potential as a worthy and effective member of society. The educator therefore works to stimulate the spirit of inquiry, the acquisition of knowledge and understanding, and the thoughtful formulation of worthy goals

The participants in this study all identify caring for the students’ overall being as important as caring that they learn. The reason is that students bring into the classroom other experiences and interests before and beyond the classroom that could hinder their learning. If these other issues are not handled effectively, instruction may most likely fail. Again the response of Participant #9 in the study is very insightful. Describing how the code of ethics for teachers has influenced her relationship with students she says:

Yes, it has affected my relationship with my students. Having read and observed the code of conduct relevant to both the profession of teaching and translation, I know what is
expected of me as a teacher and as a professional. I have a more profound understanding of my responsibilities as an instructor, a mentor, and a professional skill trainer. I know my responsibilities towards myself, my students, and my profession. If students fail to comprehend my instructions and thus, fail to give me the results I aspire for, I hold myself responsible first and try as best as I can to better shape my lesson plans, my instruction strategy, and my understanding of the needs of my students.

Some other researchers have examined how the relationship between learner and teacher is of paramount importance in the learning-teaching environment. In their study of professionalism in teaching titled, ‘Connecting the Dots: The Link between Professionalism and Teaching Practice.’ Harkness, Haugen, Kirk and Lyster (2003) identify two components to the caring heart of a teacher in the section they titled Commitment to Caring. In the introduction to that particular section of their research, the researchers quote Carl Jung:

An understanding heart is everything in a teacher, and cannot be esteemed highly enough. One looks back with appreciation to the brilliant teachers, but with gratitude to those who touched our human feeling. The curriculum is so much necessary raw material, but warmth is the vital element for the growing (grown) plant and for the soul of the child (learner/student) (p.11) (Italics mine).

Their study is dotted with testimonies of students about how their teachers guided them in the often difficult journey of learning. Many students acknowledge that beyond and above every other thing, they were encouraged to study harder because they felt their teachers cared for them, wanted them to learn and went the extra mile to simplify course materials to aid their learning. This in essence is the ‘human connection’ associated with teaching. The commitment to learners would also motivate teachers to improve methodology, to reflect on new trends that meet the learner’s capabilities. This graduation speech demonstrates that students’ appreciate the gestures:

On behalf of all the graduates, I’d like to say much more than just thank you to our teachers. Our teachers are essentially the reason why we are here celebrating because without what they’ve done for us, it wouldn’t be possible. They’ve not only taught us the importance in knowledge of facts, but also the importance in strength of character. They’ve become more than just our teachers over the years as many of us have formed friendships which we hope will last....Through the support they’ve given and the confidence they’ve shown in u, our teachers have always been there, so for that, and everything else I have failed to mention, we more than just thank you. Now, if everyone here will join me in a toast to the best teachers that any student could ask for. (p.17)

Another study on Malaysian philosophy of education titled TEACHER PROFESSIONALISM (Anonymous) discusses the role of the teacher both as a role model and a care giver. It identifies two roles of the teacher as educere (caring about knowledge acquisition) and educare (italics mine) ―the act of nurturing the young, being creative, compassionate, giving.” (p.26) The researchers finally sum expectations from the teacher thus: “The teacher, who is noble in character, progressive and scientific in outlook, committed to uphold the aspiration of the nation, and cherishes the national cultural heritage, ensures the development of the individual and the preservation of a united, democratic, progressive and disciplined society” (p.10). The study also mentions the need for teachers to be innovative in the use of technology to enhance students’ learning. A teacher that cares for his or her students’ “will lead them into learning with the newest innovations
available in order to enable them acquire skills that will prepare them to compete with the ever changing boundaries of knowledge in a globalized world.” (p.25)

Other writers Ringrose (2001) Christian, Rosevold, Coffman, and Georgii all highlight how a professional teacher should maintain professionalism in the relationship with students.

Palmer (2007) also reaffirms this connection between learners and teachers when he highlights the primary motivation for most teachers:

*These teachers remember the passions that led them to become academics, and they do not want to lose the primal energy of their vocation. They affirm their deep caring for the lives of students, and they do not want to disconnect from the young. They understand the identity and the integrity that they have invested in teaching, and they want to reinvest, even if it pays no institutional interest or dividends.* (p.177)

The second type of commitment is to professional colleagues. The participants in the study, used the following words to describe the relationship with colleagues—friendly, amicable, caring, respectful, supportive, cordial, honest, rewarding, confide, transparent, trust, cooperative, collaborative harmonious and helpful—all qualities that describe the desire for mutual respect and interdependence. One of the participants aptly captures all these qualities:

*My relationship with my colleague teachers is an honest and rewarding one. I endeavor to make my relations with my colleagues a solid one, based on respect for each other’s ideas, skills, expertise, and specialization. I always look for a transparent relationship with my colleagues, in whom I can freely and candidly express my concerns and reflections over teaching issues with students, the syllabus, lesson plans, assessment strategies, etc. This way, the relationship becomes an enriching means of honest and constructive feedback.*

Both sides of the relationship learn new ways to deal with the challenges of teaching and motivating students every day. I feel very lucky to have a number of colleagues whom I can confide in and express my worries to, without feeling awkward or scrutinized and criticized. (Participant #9)

Some other studies Palmer, (2007), Harkness, Haugen, Kirk, Lyster (2003,) have also identified caring for professional colleagues as part of commitment to caring in the teaching profession. The working environment is made more conducive when there is the spirit of conviviality and collegiality among colleagues while one filled with envy, gossip, suspicion, in-fighting and unhealthy competition engenders hostility and unproductivity. Such an environment also breeds individuality, mediocrity and stifles both teachers’ and students’ development. Learning and teaching are becoming more interdisciplinary and collaboration as teachers share research and methodology to improve student’s learning.

Thus in the commitment to caring, more experienced teachers mentor less and inexperienced peers. The strident calls for more interdisciplinary collaborations in teaching, research and learning underscores the need for cooperation among professional teachers. Where this type of cooperation and mutual understanding is lacking, learners suffer as teachers struggle in the various but limited compartmentalized teaching/learning environments. This situation could be worsened when teachers do not understand their roles especially of they neither attended professional training nor know the code of ethics of the profession. In summing the literature, a teacher is seen as a role model, a motivator, a care-giver, a confidant and a friend.

**Professional Development**

The code of ethics also identifies personal professional development as a key factor in
showing loyalty to the profession. A teacher loyal to the profession will do the needful to upgrade themselves and attract more people into the profession. In this light the NEA (1975) code encourages to exert every effort to raise professional standards. All the participants in the study agreed that professional development is paramount to their career goals. Participation #9 stresses this desire “My career goal as a teacher and a member of academia revolve around two important poles: teaching and research. I strive to enhance my teaching strategies and assessment techniques. I also aspire to advance and further my research status in the field of translation and linguistics.” Oftentimes, teachers embark on individual professional development by pursuing higher degrees, attending conferences and workshops. However, many educational institutions that care for the quality of teachers that teach in their colleges and universities organize professional development activities to improve teacher quality and skills. In this light many universities and colleges have embarked in massive faculty development programs. They have realized that an improved faculty workforce will impact positively on student learning. Other researchers have also noted how teachers’ continuous education is necessary for relevance in the field. Lisa Weber (2010) comments on teachers’ commitment to continuous learning; “A teacher’s education does not stop with his degree. He must continually be aware of best practices in his field, including new teaching methods and materials. This usually involves post-graduate work and frequent teacher workshops.” In another study entitled ‘Faculty Development as an Instrument of Change: A Case Study on Teaching Professionalism’, Steinert, Cruess, Cruess, Boudreau and Fuks (2007) highlight how faculty development revolutionized practices in their medical school. The researchers describe faculty development as “those activities that are designed to renew or assist faculty members improve in their different roles…it encompasses a wide variety of interventions to help members improve their skills…it can also be used as a tool to engage faculty in the process of institutional change.” They advised other colleges to emulate their example in other to reap the benefits of good practices.

**Teacher Professionalism, New Technology and Classroom/Learner Management**

Recently at an informal oral presentation and public speaking practice in my class, I had asked the students to choose any topic to speak on; one of the students spoke on “We do not need teachers anymore”. She argued impressively that students can learn without teachers, that technology is available to teach them, that they can learn at home and anywhere, that sitting in class is boring etc. I agreed with her on all the points but asked her to tell me truthfully, how many times she opens her laptop, cell phone, IPAD and IPOD solely for the purpose of academic study. She said, she rarely uses these facilities for study. Her speech was not surprising as it underscores the overarching influence of technology driven learning in contemporary times. Almost everyone whether inside or outside the school system agrees that one can no longer ignore the use of e-learning and mobile learning in instructions. The participants in the study acknowledge the importance of technology and their desire to enhance learners’ understanding. Responding to the question about what they would like to improve in their methodology 8 of the participants specifically mentioned integrating technology into their teaching as a top priority: Participant #4 was specific about the type of technology she would like to use in her classes, “I would love to bring the world of
new technology to my classes, such as the Blackboard Mobile which is a learning solution that brings course content directly to the student’s mobile device, Panopto Lecture Capture Software, and Shakespeak.”

Participant #2 wants to be “more comfortable with online materials and blended learning. Variety certainly motivates students, and it also means that the teacher is less prominent.”

Participant #6 wants “to be able to include more E-learning in my classes, but this is not an option that I control. The logistics of E-Learning are not available at ADU at this time, so I’m hoping that this will be possible in the near future. I am taking the Blackboard training to reinforce E-learning in all my classes.

Participant #15 wants “to have more technology integrated into our courses and more online access to include and supplement our courses such as Blackboard and Math Zone.”

Participant #17 “would like to promote teaching strategies and curricula that integrate technology effectively”

The study titled ‘TEACHER PROFESSIONALISM’ mentioned earlier further highlights the importance of technology “The smart school uses technology to support and enhance teaching-learning. With the aid of multi-media technology, self-paced and self-directed learning can be practiced. This will allow students to develop their strengths to a level of excellence and breed a generation of inventors and innovators.” (p.66)

Armstrong et al (2009) also highlights how technology has made learners more participatory:

As a teacher, technology now gives you the ability to function more as an instructional guide than a primary source of information. You may spend much of your time diagnosing individual learner’s needs and helping them develop programs of study that use technologies appropriate for their own learning styles and interests. Ideally, members of your class will engage in considerable self-guided learning. (P.290)

Teachers do not resist the use of technology. However, several issues can make use of technology complex. The assumption that teachers and learners are knowledgeable in the use of technology could in the least prove false. Issues of concern include: teacher/learner training; cost to institutions, teachers and learners; classroom management; apathy on the part of teachers, potential distractions and protection of learners (Armstrong et al 2009). How to manage these constraints is often left out in the hype about use of technology for instruction. Teachers are often left to manage the difficulties alone.

Many teachers do not come into the profession already trained in all the technology needed for innovative and effective instruction especially as the features change so rapidly. Apparently too young learners often resist any attempt to incorporate these features into educational purposes. In an unpublished study on “Face book” in Abu Dhabi University (2009), more than 85% of the students who responded to the survey said they do not use Face book or any of the other digital technology for any academic related work; rather they use the features for socializing. The cost of training both teachers and learners to acquire the necessary skills and break the apathy towards trying new technology may be quite enormous. There is also the cost of purchasing all the equipment needed to drive technology and mobile learning based instruction.

Often teachers do not know how to identify the particular features that can support instruction in their subject areas. Even when they adapt to the use of new technology, they limit themselves to familiar features. How do teachers test new technology, how do they determine what is suitable and effective for
their particular subjects and classes; how do they monitor learners for proper use, and how do they modify or improve existing technology? Most of these questions do not have ready answers. However, Stringer (2008) suggests that action research can assist professional and motivated teachers to identify and determine better and improved methods to integrate technology and other pedagogical strategies for more effectiveness. Thus action research can empower teachers and learners to identify the particular features suitable for their subjects and to keep improving methodology to meet learners’ needs.

Classroom management of the potential distractions of technology is another issue that can undermine use of technology. In an unpublished work ‘Intersections between Media Literacy and Education’ Asinobi-Iroadu (2010) notes how digital and internet technology can distract learners disrupt learning, and create problems in classroom management. A scenario where all learners come into the classroom with cell phones that ring or vibrate can create distractions for both owners of the phones and the whole class. In a paper titled ‘Should Cell Phones and Pagers be Allowed in School’ (2001) quoted in Armstrong et al (2009, p.300), the researchers observed that most teachers prefer that students leave their cell phones out of the classroom. There is also the worrisome trend of learners browsing sites not related to the subjects or lessons. Fay (2006) in “The Impact of Laptop Computers on Students’ Academic Lives” notes that most of the students observed in the study use their laptops for social activities such as reading and responding to emails, chatting, looking up friends on Facebook and watching videos on YouTube while the class was going on. Even though there are great potentials in use of technology, the teacher should monitor learners use in the classroom. There is also the prevailing influence of pornographic and other unconventional sites. The teacher needs to monitor the use in order to ensure that students use technology responsibly.

Finally, there is the worrisome issue of availability and access; the digital divide. Many learners may not have access to computers or internet technology. The assumption that everyone has access to new technology may well be one fueled by the hype about a global and digital world. What about students who cannot afford the cost of gadgets for e-learning; is it right to make them buy or borrow? What about teachers who are required to keep abreast of the latest technology, do they do so willingly or do they resent the time, money and energy spent acquiring the knowledge? There are again no ready answers to these questions. However, as the drive for the use of new technology for inside and outside the class, for mobile and distant learning continues to gather momentum, there is a need to recognize the complexity of problems use of technology can create for teachers, learners and institutions.
Conclusion

The discussions and findings in the study show that many of the participants accept the code of ethics of the education profession as a guide in the practice of their profession. However, some do not accept that knowing the ethics of their profession would affect their relationship with students and their practice. The participants also accept the challenge of teaching with new technology but would want their institutions to make available the equipment and training needed to facilitate this. They also would continue to develop themselves professionally by being involved in research, mentorship and collaborative work with other colleagues.

This paper has argued that there is a need to look again at the quality of teachers engaged in the profession as quality of knowledge acquisition is often determined by the quality of instruction. Professionally trained teachers are in a better position to drive any new paradigms of knowledge. They know what is expected of them and are also willing to apply their skills to the utmost benefit of the recipients of their services. They horn their skills continually and recognize that development is dynamic and that best practice is guaranteed when professionals are willing to be more pragmatic. It has also argued that technology is important but without proper guidance learners may not get the best intended benefits. Teachers who have embraced professional standards in their practice are best positioned to provide that guidance.

However, the researcher is aware of the limitations of a study with such a limited number of participants. She does not claim that this study is exhaustive. However, in as much as it would not be completely acceptable to generalize the findings of this study, the relevance of this study stems from the fact that there is a paucity of studies on teacher professionalism and standards. This point is pertinent especially in a region where so many of the teachers both in the secondary and tertiary are expatriates. There is therefore the need to set an agenda for professionalism and standards. Therefore, the researcher recommends further and expanded research involving teachers from across many universities, other stakeholders like students and administrators in order to widen the scope and make findings more representative.
References


‘TEACHERPROFESSIONALISM’
http://www.teachersrock.net/TEACHER%20PROFESSIONALISM.pdf Retrieved November 27, 2010

‘The Role of Teacher Professionalism in Education’


November 28, 2010.

Appendix (A) Interview Questions to Participants.

Dear Colleague,

I am doing a research on the relationship between Code of Ethics and Standards; Professionalism and Practice to Student’s Learning. I am aware of your busy schedule and appreciate the difficulty in stopping for a moment to respond to the questions, however, I would be glad if you did. I assure you that this written survey/interview is solely for the purpose of research. Your identity will remain anonymous as I have not included any fields that ask for names or departments. Please feel free to respond as explicitly and as freely as you can. Thank you for your time.

Regards,
Ebere Asinobi-Iroadu.

Questions
1. How would you define Professionalism in teaching?
2. How long have you been teaching?
3. Did you undergo any formal training in teaching? (Maybe a certificate or Diploma course)
4. Do you think it is essential for professionals to know the code of ethics of their particular profession?
5. Have you ever read any version of the Code of Ethics for Teachers/Academics?
6. If you answered “yes” to Question#5, does it affect your conduct in your work and the relationship with your students?
7. If you answered “no” to Question#5, why not? Would you like to read one?
8. How would you describe your career goals as a teacher/Academic?
9. How would you describe your relationship with your colleagues?
10. What would you like to improve in your methodology to enhance students’ learning in your classes? (Please feel free to include as much detail as possible)
Bridging Digital Divide: A Step towards Excellence in Research

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International Islamic University, Islamabad

Muhammad Abdul Malik
Preston University, Islamabad

Abstract
The study focused upon; (i) a sea change of initiatives taken by The Higher Education Commission (HEC) of Pakistan to address the knowledge gap or “digital divide” and (ii) to promote research environment in Pakistan. The study revealed that as a result of these revolutionary initiatives, research output has been increased sharply and approached to enviable 300% increase in international publications in the modest period of seven years. Virtually, Pakistan has been awarded ‘rising star’ status in five fields: the maximum fields for any country, from an internationally reputed publishing house, Thomson Reuters in its publication ‘science watch’ survey.

Keywords: Higher Education, Digital Divide, ICT Policy, publications

Introduction
Researchers explore hidden truths and facts of this universe for the betterment of humanity and doubtless to say that present day progress, prosperity and advancement is owe to restless research done by the noble figures. Earlier researchers faced great difficulties in collecting existing knowledge about any phenomena and conducting their researches but Information and Communication Technologies (ICTs) have solved their problems to a large extent. ICTs have arrayed electronic ocean of knowledge at the threshold of researchers. These technologies have expedited the changing process at unimaginatively and world knowledge base is doubling very swiftly (Field, 2005). ICTs have shrunk the world into a globe and enhanced the competition level on this planet. Technologically advanced countries are heading fast and enjoying luxurious life while others are lagging behind.

Realizing the unparallel challenges and countless opportunities created by information era and to keep Pakistani higher education at par with international standards The Higher Education commission (HEC) of Pakistan was established in 2002. HEC devised a judicious policy to boost up the higher education and in the last five years launched of a sea change of initiatives. Among them some significant measures like PhD indigenous fellowship programme, PhD foreign fellowship programme, hiring of foreign faculty, six monthly foreign research programme, establishment of PERN-1 and 2, Pakistan Research Repository, digital library, ICT ranking of the universities, university-industry linkage programme, reforms in curriculum, faculty development, facility of video conferencing to the universities, linkage of universities indigenous as well as foreign universities, tenure track system and facility of travel grant for national and international conferences etc. These have valuable
measures have fundamentally altered the Pakistani higher education landscape. Swift and simultaneous promotion of higher education is witnessed by national and international organizations and the wise policy of ICTs was considered catalyst in this promotion (HEC Annual Report 2004-05). Central figures of ICT policy are given here.

**Pakistan Education Research Network (PERN)**

The only research and education network of Pakistan, PERN was launched by the internationally reputed figure Prof. Dr. Ata-ur-Rahman, the then Minister of Science and Technology in 2002. Main purpose of PERN was to provide high quality communication infrastructure to all universities, degree awarding institutions (registered with HEC) and research organizations so that their networking and internet requirements may be met. Initially 56 public and private universities were connected at 64-128 Kbps intranet/internet bandwidth (HEC Annual Report, 2004-05). This bandwidth was increased from 128 to 155 Mbps in 2005-06 and 310 Mbps in 2006-07 at 50% cost reduction. Interestingly it is now leading in South Asia. (HEC Annual Report, 2007-08)

Realizing the advancement in ICTs and current and future needs of the higher education institutions and researchers, HEC launched a new state-of-the-art PERN 2 in 2007. More than 100 times enhanced bandwidth would be provided to all public and private universities as compared to present bandwidth through advanced networking infrastructure at very low cost. (HEC Annual Report, 2007-08)

A dramatic increase in article downloading / uploading and publication was witnessed soon after the establishment of NDL. Initially, researchers downloaded approximately 10000 full text articles from the national digital library while this downloading approached to one million in 2005. Amazingly, at the end of 2006 this count increased swiftly and crossed the figure of two million. (Amina, 2006, HEC Annual Report 2006-07 & HEC Annual Report 2007-08)

**Pakistan Research Repository (PRR)**

For the promotion of research sector in Pakistan, another key initiative of HEC was establishment of PRR. It aimed to; (i) provide an open access to scientific literature, (ii) promote international visibility of research conducted in Pakistani universities and (iii) facilitate national and international knowledge sharing. The PRR has grown-up radically over the last year and currently more than 2200 full text PhD these are available on the repository. More than 200 high-quality digitized theses are being uploaded in the repository and its web address is http://eprints.hec.gov.pk . Presently it is hosted at HEC data Centre in Islamabad and sooner similar child server will be deployed in
the higher education institutes. These will be cross searchable and in addition universities will be able to upload all their theses directly onto these servers. (HEC Annual Report 2005-06, 2006-07, 2007-08, 2008-09 & 2002-08). Major contributors to PRR are as under:

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<thead>
<tr>
<th>Sr. No</th>
<th>Name of university</th>
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<tr>
<td>2</td>
<td>University of the Punjab, Lahore</td>
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<td>3</td>
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<td>4</td>
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<tr>
<td>5</td>
<td>University of Arid Agriculture, Rawalpindi</td>
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<td>7</td>
<td>International Islamic University Islamabad</td>
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<td>University of Engineering and Technology, Lahore</td>
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<td>18</td>
<td>Other 22 universities (with less than 10 theses)</td>
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<td>Total 39 universities</td>
<td>2024</td>
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</table>

Source: Higher education Commission of Pakistan www.hec.org.pk

**ICT Ranking of Universities**

For getting optimal benefits from the advance technologies in higher education, ICT ranking policy in Pakistani universities was launched by HEC. Main objective of were; (i) to develop and bring the higher education institutions at par with international standards. (ii) to define the levels of development of standards-complaint, websites, network architecture. (iii) to provide and implement standards to access the information worldwide. (HEC 2005-06)

**Researchers**

Researchers are the real power behind advancement of any nation because they explore the hidden truths of nature and open new vistas of this universe to the human beings. Unfortunately due to ill-conceived and non-consistent educational policies in Pakistan, the number of researchers was also very low as compared to regional counterparts and other nations as well. In 2002 the total number of researcher (scientists and engineers) per million people in the country was about 72 (Akram, 2004) and due to judicious and well conceived policies of HEC this count swiftly increased and reached up to 75 (UNDP, 2007-08). Despite of this remarkable increase still we are lagging far behind in this race.
Table 2: Number of Researchers per Million

<table>
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<th>S.No</th>
<th>Country</th>
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<td>10</td>
<td>Pakistan</td>
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Publications

Number of research publications in the international reputed journals indicates the quality of research and quality of education. Universities impart knowledge and produce knowledge through research. Research play vital role in the socio-economic development of the country, strengthening infrastructure, training of highly qualified manpower and improving the quality of higher education (Isani and Virk, 2005).

HEC has launched several research facilitative programmes to promote research in Pakistani universities i.e. PhD foreign fellowship programme, PhD indigenous fellowship programme, hiring of foreign faculty, six monthly foreign research programme, establishment of PERN-1 and 2, Pakistan Research Repository, university-industry technology support programme, digital library, ICT ranking of the universities, university-industry linkage programme, reforms in curriculum, facility of travel grant for national and international conferences faculty development, facility of video conferencing to the universities, linkage of universities indigenous as well as foreign universities and tenure track system etc. (HEC Annual Report 2002-03, 2004-05, 2005-06, 2006-07,). Allocation of grant for research purpose was enhanced by 474.47% for the promotion of research in Pakistan. (HEC Annual Report, 2002-03).

Table 3: Number of Publications

<table>
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<td>5</td>
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<td>6</td>
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</table>

Source: HEC Annual Report 2005-06

The table 2 indicate that research output has increased sharply over the past five years especially 47% increase in during 2005 to 2006. The percentage of publications has doubled from 2003 to 2004 and likewise 33 % increase from 2004 to 2005. This swift and consistent increase in the count of publications is result of measures taken by
HEC for the promotion of higher education in Pakistan. In this achievement facility of ICTs especially the digital library played discriminative role as users access to 25000 international journals and 45000 ebooks provide opportunity to voyage in the ocean of knowledge. This is encouraging situation but the number of publication may be magnified as this count is far behind to our neighbors and regional partners.

**Main Purpose**

Main purpose of the study was to evaluate the role of HEC in ICTs penetration in higher education for bridging the digital divide and knowledge gap. Impact of ICTs on the promotion of research sector and publication in Pakistan was also assessed in the study. Problems and issues pertaining to the use of ICTs were also ascertained in this study.

**Research Methodology**

**Population and Sampling**

The population of the study consisted on Institutes of Education and Research (IERs) and Departments of Education in public sector universities of Pakistan. The sample of the study consisted of 100 scholars (academicians and students of MS leading to PhD Education and PhD Education) drawn conveniently.

**Instruments and Their Development**

Keeping in view the nature of the problem, descriptive i.e. survey type study was carried out to collect the data. Therefore, to elicit the opinion of the respective respondents, a questionnaire was developed and administered.

**Data Analysis**

The data collected through questionnaires were analyzed by using mean, percentage and standard deviation formulas through SPSS.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>UNC</th>
<th>DA</th>
<th>SDA</th>
<th>Mean</th>
<th>StD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teachers encourage students to use NDL and PRR</td>
<td>24</td>
<td>38</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>4.03</td>
<td>.97</td>
</tr>
<tr>
<td>2</td>
<td>NDL and PRR are very useful in searching required material for their research.</td>
<td>29</td>
<td>34</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4.11</td>
<td>1.01</td>
</tr>
<tr>
<td>3</td>
<td>NDL and PRR have facilitated scholars in their research</td>
<td>25</td>
<td>36</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>4.04</td>
<td>.97</td>
</tr>
<tr>
<td>4</td>
<td>NDL and PRR have envisioned scholars with new research horizons.</td>
<td>27</td>
<td>33</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>4.08</td>
<td>1.02</td>
</tr>
<tr>
<td>5</td>
<td>NDL and PRR have helped students in overcoming their research problems.</td>
<td>27</td>
<td>39</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>4.13</td>
<td>.90</td>
</tr>
<tr>
<td>6</td>
<td>Scholars need more training to use NDL</td>
<td>33</td>
<td>34</td>
<td>5</td>
<td>4</td>
<td>-</td>
<td>4.24</td>
<td>.82</td>
</tr>
<tr>
<td>7</td>
<td>Lack of training is a barrier in the proper use of NDL</td>
<td>29</td>
<td>35</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>4.19</td>
<td>.83</td>
</tr>
<tr>
<td>8</td>
<td>Power failure has created problems for researchers</td>
<td>25</td>
<td>37</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>4.16</td>
<td>.85</td>
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<tr>
<td>9</td>
<td>Slow Internet connectivity is often faced by the scholars</td>
<td>22</td>
<td>31</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>3.7</td>
<td>1.18</td>
</tr>
<tr>
<td>10</td>
<td>Lack of peer support is also a problem in the proper use of NDL</td>
<td>24</td>
<td>30</td>
<td>11</td>
<td>4</td>
<td>6</td>
<td>3.81</td>
<td>1.18</td>
</tr>
<tr>
<td>11</td>
<td>Any other barrier in the use of NDL.</td>
<td></td>
<td></td>
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<tr>
<td>12</td>
<td>Some suggestions for NDL usage</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Table : 3 depicts that teachers are not only frequent user of NDL and PRR but they also encourage students to use it. This library is very useful for scholars and they were envisioned with new horizons of research through NDL and PRR. Undoubtedly these facilities proved a useful remedy in solving their problems. Lack of training to use NDL, power failure, slow connectivity and peer support were the major problems for researchers in using NDL.
Conclusion

The judicious ICT strategy of HEC has altered the landscape Pakistani higher education especially the research sector and publication of articles and in national and international journals. NDL and PRR were playing vital role in the promotion of research environment in Pakistan. Article downloading and publication rate is increased dramatically after the establishment of NDL and PRR. Enviable increase in international publications is witnessed in the modest period of five years. Recently, Pakistan has been awarded ‘rising star’ status in five fields: the maximum fields for any country, from an internationally reputed publicizing house, Thomson Reuters in its publication ‘science watch’ survey (www.sciencewatch.com). Doubtless to say, this enviable prestige, swift and consistent increase in publications is result of thoughtful ICT strategy of HEC. The study arrayed lack of training to use NDL, slow Internet connectivity, lack of skills to retrieve information, off-campus access and power failure as major barriers to use NDL. Therefore, for getting optimum benefits from NDL, a more holistic approach may be used to address these problems especially training to use NDL.
References


www.sciencewatch.com
Technologies for Learners’ Empowerment

Nabil Eid
ICT for Inclusion and Development PwDs in MENA Region

Abstract

One of the disabled who were enrolled in one of the Information Technology (IT) courses answered when asked why he is doing this course: “I want to show the world that though it may be true that I am disabled, I am not disqualified”.

‘Disabled but not disqualified’ - under this motto, governments, organisations, None Governmental Organisations (NGOs) and private sectors are working together to enable the Students with Disabilities (SwDs) get integrated into the mainstream of the society and realise their full potential.

With the advent of information and communication technology Information Communication Technologies (ICTs), new hopes are emerging for PwDs. In spite of the huge challenges, sincere efforts are being undertaken to involve ICTs to counter issues around disability.

The information society represents at once significant opportunities but also potential new barriers for the social inclusion of disabled people.

Information Communication Technologies and Assistive Technology are offering new opportunities for everyone but it is more significant for PwDs, as they use assistive technology for daily activities to a higher extent than people in general. Assistive technology adapted to the abilities of everyone, disabled end-users would be able to participate to all aspects of social life on more equal terms than ever before. It is vital for students to benefit, on an equal basis, from rapid development of Information Communication Technologies to enter an inclusive and barrier-free Information Society.

"A journey of a thousand miles begins with a single step”

We need information and knowledge to get our basic needs met, make decision, move around, participate in social, economic and cultural activities. Information Communication Technology is of course an enabling technology and we should not lose sight of this fact. If it is not properly planned, managed and implemented, it might throw us into social gaps or the ‘digital divide’.

The use Information Communication Technologies (ICTs) in the field of e-learning and education is very high on the political agendas of Arab countries and we are required a lots of efforts at national, regional and global level to address the special requirements of students with disabilities, using appropriate educational, administrative and legislative measures to ensure their full inclusion.

Opportunities for connecting those students through Information Communication Technologies and Assistive Technology (ICT&AT).

ICT&AT for Development disabled students is adopting feasible techniques to attain the maximum benefit in addition the use of Assistive Technology (AT) can increase their capabilities and independence in both in and out of school settings.
The items can be used for communication and productive or to provide an individual with an opportunity to experience recreational opportunities.

Individuals with serious sensory disabilities such as physical disabilities, visual impairments or deafness have benefited more than any other group of individuals from advances in assistive technologies.

The advances in technology for these individuals can lead to increased productivity, employment and recreation opportunities.

Some progress towards disability inclusive development, there were very few initiatives aimed to include disability in the Millennium Development Goals (MDGs) "Education for All"

Introduction

New Age of Teaching Methodologies for Students with Disabilities, Information Communication Technologies and Assistive Technology (ICT and AT)

No .. Pencils, Copybooks nor Books for Teaching Students with Disabilities .. It's ICT & AT!!

ICTs have potential for making significant improvements in inclusion, development, e-learning and education of students with disabilities.

Statistics and Factsheet

The following statistics will give us an idea:

- On an average around 10 per cent of the world population is disabled and this number is likely to increase in the near future due to various factors. Says the World Health Organization (WHO).
- Eighty per cent of persons with disabilities live in developing countries, according to the UN Development Programme (UNDP).

- Disability rates are significantly higher among groups with lower educational attainment in the countries of the Organisation for Economic Co-operation and Development (OECD), says the OECD Secretariat. On average, 19 per cent of less educated people have disabilities, compared to 11 per cent among the better educated.
- The World Bank estimates that 20 per cent of the world's poorest people have some kind of disability, and tend to be regarded in their own communities as the most disadvantaged.
- The global literacy rate for adults with disabilities is as low as 3 per cent, and 1 per cent for women with disabilities, according to a 1998 UNDP study.

However, Information Communication Technologies and Assistive Technology have the potential for making significant improvements in the lives of students.

To achieve equality and development of students with disabilities through address the inclusion of students in use information and communication technologies, Assistive Technology and social services, learning and employment, provide the best education, capacity building, developing life-Skills for those students.

Overall goal(s) of Empowering Students with Disabilities and use Technology

Information and Communication Technology (ICT) has been identified as an important aspect of the wider strategy for the social inclusion of students with disabilities through the following topic:
**e-Learning at Distance**

The distance learning home is accessible to students with disabilities. Distance courses allow students with disabilities to continue living at home while they are studying, to share documents, lessons, exchange ideas and make presentations. Using a computer were common components for the training and studying.

**Reading Digital and Audio Libraries**

Students with intellectual disability, hearing disability, reading disability, blind, dyslexia and other disabilities are now able to get their courses from digital and audio libraries and get material, content, resources from internet; the students can themselves connect from home and read or hear the relevant books, without needing to go to the university or local library.

**Internet, Broadband for Students with Disabilities**

The students with disabilities are using the internet building capacity to communicate with each other at a distance, during the internet they are gathering and understanding public information, news, participating in leisure interests with others, chat, shopping, attending finances, writing to authorities and friends, a computer with a broadband connection provides opportunities for enhanced participation and independence life.

**Winning Communication**

The students with disabilities are now able to communicate with others online, taking e-learning courses and interact with the instructor and the other students through online discussion.

Also, moderating synchronous communication, learners may find it hard to attend to the many elements that are active at the same time during an online course. The moderator or facilitator of the course needs to ensure that all learners are attending to the information being presented and see the relationships among what is happening on screen, what the presenter may be saying, and what is appearing in print.

For example, online discussion for learners who are deaf, learners who are deaf will be unable to participate in audio conferences or video conferences.

Another example, online discussion for learners with mobility impairments, learners with mobility impairments may use an alternative keyboard or speech input software to access the online course and participate in written communication.

"In Arab countries we are missing for such Web sites, moderating synchronous communication in education and e-learning"

**Access Point to Student**

Access point to students with disabilities in disadvantaged communities through ICT Telecentres and Assistive Technology centers especially in MENA region and maximize the use of IT skills for the welfare of disabled students in rural and disadvantaged communities in addition creation of public awareness that PwDs can utilize their potentials for their use and the society using adaptive technology.

"But the key question, how many assistive technology centers in the Arab region??I think that number is so limited"

**Empowerment of Target Group**

The proposal of ICT&AT for development students with disabilities is adopting feasible techniques to attain the maximum benefit for the use of ICT for students. It makes use of all types of provision within special educational setting as a result of national or regional policy in Arab region.

The proposal refers different methods some of which are:
• Direct training to disability cases, through specialists, developers, special education teachers and volunteers.
• Indirect training through communicating with household and disabled parents.
• Exchange of expertise with the other interested agencies, universities, researcher and specialists.
• Implementing special e-learning networks for disabled teachers and students to exchange lessons, courses and information among themselves.

For example, I created network "ICT&AT4DPwDs" it’s a community of people, researchers and organizations working together to improve the social and economic impact of PwDs.

Kindly, find the link: http://ict4dpwd.ning.com

Direct online for the students with disabilities so that they inquire about certain services and suitable support and consistent follow up to disabled cases through surveys and statistics, giving the disabled students guidance about the prepare educating individuals for them through ICT.

This can be implemented through special education teachers and regional specialist work in groups.

Kindly, find my group on the link: www.telecentre.org/group/telecentrefordisabilities.

The benefits of ICT in e-Learning and Improving Capabilities of Students with Disabilities

Basically, we all believe that the ‘Information Society for All’ and the target can be achieved through series steps for example, building and supporting knowledge centers/telecentres in remote and disadvantaged communities all over the world specifically in the poor and developing countries which should and could be structured in a way so that they can look after the needs of the disabled.

ICTs are useful for improving the quality of life by enhancing effectiveness of teaching, developing life-skills; complementing learning in special needs education, and exploring other related issues.

ICTs enabling disabled students to provide access to the curriculum and support learning and help disabled trainers and promote their skills.

ICT can be compared to a magic stick that will help the disabled students to jump forward, to capacity building, empowerment and combating poverty among them in their communities, if utilized in a coordinated, planned and appropriate manner.

ICT is heralded as enabling PwDs to participate fully and to enhance the social and economic life of their communities, combined with proper methodologies can offer individuals the ability to compensate for physical or functional limitations.

ICT is a significant force in terms of choice and opportunity for disabled students and significant means of bridging this gap.

ICT offers the old and the young alike an opportunity to overcome social barriers to interaction and communication that can be caused by the lack of provision for impairments or life-long limiting illness.

ICT has also been identified as playing a significant role in offering severely disabled people an increased degree of independence in everyday life.

ICT gives the disabled persons an improved quality of life through individuals and offer the ability to compensate to access knowledge by adapting digital media to the nature of their disabilities.

Technology for Students with Disabilities

There is now a general consensus that for students with disabilities to share in the benefits of new technology, The use of
technology for students in the field of education has tremendous potential in alleviating particular problems associated with particular disabilities as well as making job opportunities available for persons with Intellectual disabilities, physical disability, visual impairment and hearing impairment. The goal can be achieved through specialized computer programmes and models to enhance the capacity of disabled to share teaching and learning skills generated from, and shares successes (and challenges) gleaned from, fellow educators working with students with disabilities.

Therefore, in 2009 we launched new project (RPoA) for Building the Information Society, Information and Communication Technology for the Development of Persons with Disabilities (ICT4DPwDs). through Regional Follow-up to the Outcome of the World Summit on the Information Society, UN-ESCWA, the project included (Syria, Lebanon, Egypt, Sudan and Yemen).

"But so far the project has not been effectively activated, in spite of communication with a lot of organizations in the Arab region".

For more details about the project find the link:

e-Learning and Education of Students with Disabilities.

Growing importance of e-learning, or “electronic learning” is fast becoming the leading mode of distance delivery in adult education, and diversity among learners as more learners become engaged in e-learning, instructors and course developers are finding that the pool of learners is becoming increasingly diverse. Among those learners who access adult education through e-learning, a proportion will be those who have learning challenges.

e-learning and education meet the accelerating needs of our communities in Arab countries. The numbers of students with disabilities cases in our societies especially in remote and disadvantaged communities increased. For this reasons we are required to work with groups of developers, researchers, teachers and volunteers to combat this situation. Also, we are obliged to set work plan and look to the measures and spent efforts to realise this move.

we can work gradually a deeply rooted base through special education teachers, volunteers and donor’s that would ensure e-learning strategy and suggest ways in which instructors and course developers can prepare their e-learning courses so that accessibility is maximized for all learners, including those with disabilities. The principle of universal design for learning, “best practice” teaching strategies and accessibility guidelines that will reduce barriers in an e-learning environment.

For example, in Studies Centre for Handicapped Research "SCHR" we applied a few of principles of universal design for learning through the following topics:

- Work to increase education participation earnings and the quality of education for groups that experience persistent education barriers including students with disabilities.
- Improve overall education outcomes for students through extending sustainable education objectives.
- Encourage the development of a range of options recognizing the diverse needs of disabled people.
- Ensure students with disabilities have the same education and inclusion conditions.

Make ICT methods offered to the general public available in formats appropriate to the different needs of disable students.

More details about SCHR and best practice on these links:
http://www.caihand.org
http://www.epractice.eu/en/cases/ict4dev
**Students with Disabilities moving from Isolation to Integration**

What we do and what we want?

There is not a single answer to the question of what we want.

- Design a learning profile of each student (disabled)....By being aware of the learning styles, work level, reasoning ability, classroom participation, comprehension and progress of a student with disability.
- Develop effective teaching techniques....Develop or modify curricula and testing to ensure that disabled students obtain the information and skills they need and that they are evaluated accordingly.
- Provide individualized instruction...To be effective, special education teachers should modify their instruction to meet the various learning styles and abilities of students with disabilities.
- Provide a structure for learning...Many students with disabilities have difficulty organizing information, developing work habits.
- Build self-esteem of students with disabilities...Deliver...information in a gradually more progressive manner, allowing them time to master a topic at one level before moving on to more difficult material.
- Meet with parents to discuss their child's problems at school.
- Collaborate with parents and guardians on their child.
- Technology that can help in including the disabled within the curriculum framework and let them have seamless access to computer literacy is the need of the hour.
- There can be many other ways in which ICTs could be used to enhance the skill sets of PwDs, raise their education, hopes and opportunities. In this respect we developed programs to benefits PwDs.
- Developing programmed services for students with Mild/Moderate disabilities and flexible control mechanisms would facilitate easy learning for them.
- Adaptation of standard software to the needs of children with intellectual impairment. Compatibility of application and cooperation, in order to get a standardised storage format for text, pictures and sounds in different teaching materials and software's according to the differing needs of children with disabilities.
- Certain special browsers can be programmed, enabled with speech recognition devices for wider access of the Internet to the disabled. These devices would facilitate access of information for persons with disability as done by their peers.
- Improvement of networking facilities to allow more efficient co-operation between universities, institutions and telecentres for all types of disabled students online network (discussion groups, mailing list, chatting, etc...)
- Improved disability prevention will require a change in organisational priorities, restructuring of the symptom-driven healthcare system, and training for providers and clients to co-operate in collaborative care.
- Extensive research is needed to activate the role of ICTs in the community.

**ICT Providing Computer Accessibility for Students with Disabilities**

For intensive exchanges of knowledge and experience in promoting awareness, planning
and developing accessible ICTs solutions in the context of sustainable and equitable development for present and future generations.

To address the digital divide faced by persons with disabilities in the world and to promote the digital opportunities of PwDs, the decisions and declarations adopted a set of recommendations including the definitions of PwDs, (ICT) “and “Accessibility”.

“Accessibility” can readily be reached or used at:


The role of ICTs is to promote teaching, learning and explore the following issues relating to how ICTs enhances learning, and it will also explore how ICTs enriches the learning opportunities and potential of students who have disabilities.

It is largely a software concern; when software, hardware, or a combination of hardware and software, is used to enable use of a computer by a person with a disability.

Use ICTs & AT in education to achieve more purposes

- ICTs can help disabled students to provide access to learning.
- ICTs can provide support for learning.
- ICTs can help disabled students teachers and promote their skills.
- ICTs help students to merge in their local society.

Use ICTs for making sites accessible

For instance, how we can make sites accessible to students with learning disabilities.

We can do to ensure that site is accessible to these students.

We can ensure that site is accessible through a screen reader to assist them when using a site and certain Web Content Accessibility Guidelines.

We can greatly improve the accessibility of site to PwDs through the following points: Navigation; Necessary of content; Links; and Headings.

Improving readability is also important and certain techniques aimed at assisting PwDs include: Shortening sentences; reducing column width; using headings; reducing color contrast; and presenting only one idea per sentence.

Commitment to apply the principles of the Web Accessibility Initiative (WAI) and the Web Content Accessibility Guidelines (WCAG 2.0)

**Best practice**

For making sites accessible to PwDs in MENA region we contributed in auditing the Web Content Accessibility Guidelines (WCAG) 2.0 with the research Unit of Technologies of Information and Communication UTIC And Higher School of Sciences and Technologies of Tunis, University of Tunis.

http://www.utic.rnu.tn/wcag2.0/

Use ICTs for Students with a Physical Disability

ICTs may be essential for access for communicating with other pupils. ICTs for help students in IT skills.

**ICTs tools that can offer support**

Communication aids, computer access devices – switches.

Access utilities and specialized software, Software with alternative input options.

**Best Practice**

I trained groups of students with Physical Disability on applications programs such as: ICDL, Graphics Design, Web Design, there is a good sample for Physical Disability and
give them good opportunities for education and job

Use ICTs for Blind and Visually Impaired Pupils

Another blind and visually impairment, since computer interfaces often solicit input visually and provide visual feedback in response. Allow students to make the most of their vision when using ICTs and Assistive Technology.

In this respect we have to take the following points into consideration:
Consider the position of the student. Consider the position of the screen and the clarity of the display.
Use large, clear fonts if they help adjust the colors and add speech feedback where possible.

ICTs Tools that can offer Support

Speech recognition, talking word processors, big pointer utilities, screen magnifiers, screen readers, electronic Braille's, closed circuit television.

Best Practice

We had launched the first project in MENA region with UNDP/Egypt, ICTDAR Program through ICTARB project in ReefNet project, Salamieh Telecentre- Syria, 2005-2006
ICTDAR program: Information and Communication Technology for Development in Arab Region.
ICTARB project: Information and Communication Technology Arab Region for Blind.
Please find the links:
http://ictdar.pogar.org/Projects/ICTARB/ICTARB.htm

Success Stories

http://ict4dpwd.ning.com/profiles/blogs/yara-obiedo-walking-towards-a
http://www.telecentre.org/group/telecentrefor disabilities/forum/topics/telecentres-for-disabilities
http://www.telecentre.org/group/telecentrefor disabilities/forum/topics/success-stories-ali-alhaj

Use ICTs for Pupils with Hearing Impairments

Whose language is a major difficulty. While sound user interfaces have a secondary role in common desktop computing, usually limited to system sounds as feedback, software producers take into account people who can't hear, either for personal disability, noisy environments, silence requirements or lack of sound hardware.

ICTs can be used for language development activities, Symbol or picture enhanced text can bring meaning to print and illustrated concept keyboard overlays make writing more accessible.

ICTs tools that can offer support

Symbol generating software, word processors, concept keyboards, word lists, clip art to illustrate writing and spell checkers and grammar checkers.

Best Practice

I had launched in 1994, Syria a new sign language for teaching students with hearing disability on computer sciences and suggested to create a new dictionary for computer sign language.

Please find the links:
Use ICTs for students with Autistic spectrum disorders, Dyslexia, Down Syndrome and Learning with Disabilities

Explore ways in which ICTs can be used to support individual students' needs and provide exposure to online resources. Software which the teacher can use to support those needs.

Learn about the use of these resources and strategies to assist with their integration into the curriculum, learn about different uses of ICTs and AT, to assist in language development and communication also, focus on a topic of particular interest to the participants through a project in a supported environment.

ICTs Tools that can offer Support Specialized Programs

Talking books, word list facilities, laptop computers, talking word processors and speech driven writing tools.

Best Practice

Development of Educational Software

New program for Teaching Children with Intellectual Disability

Name of Program (Listen, Look, Think then Answer)

http://www.telecentre.org/profiles/blogs/listen-look-think-then-answer

The program specializes in teaching software for children with intellectual disability. The program in Arabic language and it's suitable for local environments especially in MENA region communities. Any child with intellectual disability can benefit from this program. I have tailor made my program to meet the needs of children with mild/moderate disabilities, mental retardation that have learning disabilities. Intellectual disability program is a unique teaching tool offering teachers and parents individualized (and growing) educational program to early intervention.

Where the program applied

The program applied in: Sultanate Oman, Muscat

More details on the links:

http://www.telecentre.org/profiles/blogs/workshop-in-5-days-to-use-of

Syrian Arabic Republic

More details on the link:


Workshop in Libya

at the First Arabic Conference on the Rights of Persons with Intellectual Disability."

Also we will apply the program at Friends of Disabled Association in Lebanon and Gedaref Digital City in Sudan.

Workshop in Libya at the First Arabic Conference on the Rights of Persons with Intellectual Disability."

Also we will apply the program at Friends of Disabled Association in Lebanon and Gedaref Digital City in Sudan.
Teaching Montessori at Home ( Software Program ) for children with CP.
http://www.caihand.org/pm.htm

Assessment and treatment of children with Cerebral Palsy. ( Software Program ).
http://www.caihand.org/shd.htm

Studies of attitude toward the intellectual disabilities in Arab region (Software Program)
http://www.caihand.org/atg.htm

Education Strategy for Students with Disabilities

ICT&AT, opens up great opportunities to improve the quality of life students. Education is possible where students with disabilities want to learn, develop, live and finally work in the future. the role of strategy to rehabilitate ICTs in the field of disabilities to acquire education and jobs in the future. Together we work to:

- Development of students with disabilities whose successful transition from education to work.
- Educate special education teachers.
- Increase education participation earnings and the quality of education for groups that experience persistent education barriers including students with disabilities.
- Improve overall education outcomes for students with disabilities through extending sustainable education objectives.
- Encourage the development of a range of options recognizing the diverse needs of PwDs.
- Ensure students with disabilities have the same education and inclusion conditions.
- Foster an aware and responsive public service.
- Make all information and communication methods offered to the general public available in formats appropriate to the different needs of disable people.

Also, we need to improve and develop the necessary human and knowledge resources required to deliver the specialised training, which will enable PwDs to become gainfully employed. We will simultaneously draw attention to the breadth of potential value in ICTs for persons with disability in education and employment.

Students with Disabilities and Barriers

What we need and what the challenges?

Raise awareness about the barriers that students with disabilities face and identify the potential of technology to overcome these barriers.

Six inter-related barriers to ICT can be identified in existing literature. These are:

- Lack of interest
- Lack of awareness
- Difficulty of access
- High cost of ICT
- Lack of on-going support
- Lack of training.

Limited of complementary services e.g. assistive technology, special accommodation for certified exams, vocational counseling and assessments.

Limited of accessibility features at mainstream ICT training facilities.

For the sake of brevity, these barriers will often be referred to throughout the document simply as Interest, awareness, access, cost, training and ongoing support.

In this sense, the above identified barriers can be seen as bottlenecks in the path towards ICT education and inclusion.

People enter this process at different stages. For example, some students may already have an interest in and awareness of ICT having recently retired from a job requiring computer literacy. Others may have money but lack
awareness of methods by which they would be able to access ICT. They inter-relate and overlap. For example, there is often a cost associated with training or on-going support, sometimes a prohibitive cost. Similarly, awareness of low cost and no cost options can bring ICT equipment within the financial reach of many PwDs. Also, there are different types of support structures available within countries but, must be focused upon combinations of one or more of the following to succeed the role of ICTs in development disabilities through attitude barriers in relation to understanding the benefits and possibilities of ICTs at policy and diffused responsibility for policy implementation. Specialist national, regional, and global working groups to support networks and on-line networks.

The development of theory for using ICTs in e-learning of disability is seen as being potentially enhanced if there are opportunities for co-operations between different groups of actors (PwDs and their families, teachers, support professionals and researcher) at national and international levels. Furthermore, the possibility to enhance virtual co-operation with face-to-face meetings and exchanges was raised. The power of ICTs as a tool for communication as well as a tool for learning is reinforced by the personal contact and exchange of persons with disability and ICTs specialists. But if we know what we need we want to know the main challenges which face the students with disabilities projects. It's a reward for us to see the PwDs and their families have better life.

The Future, Moving from Advocacy to Action

The use ICT for the education of students with disabilities needed to be looked at by policy makers, researchers/developers and information providers in more depth. These suggestions give an insight not only into areas of present and future need, but also into what the ICT in disabilities field may look like in the future if these practitioners’ requests are met. Specific suggestions related to four areas of ICT for the education and development persons with disabilities:

1. Requirements in terms of IT infrastructure development
   - Hardware and Software Development.
   - ICT innovations as one solution to problems of communication and access to mainstream activities and diagnostic purposes and suggestions needs to be a clear focus upon the educational context – cultural and philosophical as well as the technological development.
   - Internet Access
   - Widening access to Internet and improvement of networking facilities to allow more efficient co-operation between institutions and development of an international virtual resource centre with all the information being related to ICT and disabled students.
   - Compatibility/application issues
   - Adaptation of standard software to the needs of the children with different disabilities and integrated research concerning hardware and software in order to ensure compatibility.

2. ICT provision : training, support and learning
   - Policies
• Policy information were put forward examples of policy documents regarding ICT for development PwDs from different countries, data on important results and progress resulting from policies. Also, comparative reports of support structures with statistics and trends identified.

• Information on ICT policy, its implementation in practice and its evaluation in other countries was seen to be of high importance. An exchange and reflection upon policy information was seen as an important aid to the learning process at a global level.

• Usage
• The main priority for sharing information and practical information on latest hardware and software developments. Overviews of information on available hardware and software relating to particular types of PwDs, examples of innovation in teaching strategies that could be transferred from one country to another, innovations and successful practices in ICT4D PwDs.

• International exchange of resources; comparisons of resource provision across region and global and information on training and training resources that are available, management in schools, educational processes.

• Other Users
• The information on users focused upon addresses of experts and institutions in the different countries. International contacts on ICT development and implementation international conferences/seminars for products and services.

3. The potential focus of future researches and collaboration
Implementation and evaluation as well as researches and development of technology through researches into psychological aspect of ICTs4D PwDs, development into new technologies specifically designed for children with special educational needs, researches on the actual effects of ICTs in the learning process, researches work concerning how ICTs may help support the education and inclusion process of students with disabilities and researches into systems directly related to the educational environment and its requirements also, a survey of initiatives and projects using the full range of opportunities for educating students with disabilities.
Curriculum development using ICTs (considered in both a theoretical and practical way). In the development of educational software, there should a clear focus upon the educational context - cultural, ethnic, philosophical and psycho-pedagogical. All the suggestions in this area point towards the need for systematic, long-term collaboration, research and/or evaluation that would require the input of different groups of ICTs in practical range.

Lessons Learner
In this area we explore practical examples of using ICT to assist with the teaching of disabled students by help in identifying the most appropriate technologies for addressing
individual needs, and suggestions on how these might be managed in educational learning, understanding of ICT and an awareness of the needs of learners with different disabilities. This aim to identify key areas in which ICT can help particular learners.

We find practical experiences of using low-tech aids and ICT to support access to the curriculum focusing on disabled students from nursery and those who are developmentally young. Also included is a series of templates designed to help and create special software.

Please find the link: http://telecentremagazine.net/articles/article-details.asp?Title=Consolidation-and-Expansion-of-the-ESCWA-Knowledge-Network&articleid=301&typ=Event
Conclusion

"The People are the real wealth of nation"

ICT is providing opportunities and making life easier for the students with disabilities by innovations in quick successions. Students with disabilities are now able to communicate with each other and learn through tools of Assistive Technology (AT) and Information and Communication Technologies (ICTs).

Despite the fact that AT&ICTs is helping students with disabilities to learn and interact, but there are some barriers that come in the way of the disabled to get advantage of the wonderful technologies.

Ensure that all students with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment and independent living.

Design and develop special education, programs and instructions to meet the unique needs of a student with a disability that is provided at no cost to the child or the child’s parents. It is provided in the classroom, in the home and institutions and in other settings.

Establishment of training programs to disabled instructors and include personal training, classroom training, e-learning and online seminars according to need and preference.

Collaborate with universities and development researches and focuses on innovation in the area of Arabic language solutions to expand the reach of AT solutions to an Arabic speaking students.

People with disabilities should have the same rights to participate in the Information Society as other citizens. (ICT) should be tools that help overcome barriers they face in education, the workplace and social life.
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Guidance for Sustainable Higher Education Web Services

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Abstract

Few universities anywhere remain untouched by the profound changes that have swept over their academic efforts in the past few years. Students of all groups have developed much more sophisticated expectations, demands and study patterns than ever before due to the advent of the Web. The Internet provides easy access to extensive information about university services, as well as a rich array of interaction options. This means student loyalty is tougher than ever to build and maintain. Neither new prospects nor existing students will respond to academic messages that are not timely, relevant and offer recognized value. By reducing time and distance to nearly zero, technology has shifted the power in the student-university relationship to the students. Students now choose when, how and where they will interact with university services. Also students noticed that current universities web services provide information through a one size fits-all approach where all students travel through the same network of pages and directories, and that delivers the same information each time the student logs on. As universities web sites are becoming larger and more complex system, which include huge databases, text search, multimedia, interactive interfaces and advance e-learning tools, from student point of view, it becomes very difficult to find useful updated information and personalized services hidden in huge cover of the universities database. In relation to this problem, the target of this study is to focus on the students of institution of higher education to judge the student’s perception of a university personalized web services business. A summarization of personalized educational web services current issues is presented. These issues have been addressed and discussed to build knowledge about this area of research and to construct the conceptual model and information architecture. Many of the personalized web services issues and technologies in business world adopted in this study, were based on the fact that were students considered being as the main customers toward a sustainable educational environments. The technologies under discussion will also influence our understanding on how institutional services are organized and delivered sustainable strategies around which institutional services are developed. Also the discussed guidelines can be very helpful for developing a research instrument and implementation of student personalized web services prototype.

Keywords: Higher education web services, Student loyalty, sustainable educational environments, sustainable web services, personalized web services

Introduction

From the daily interaction in the Internet, researchers can notice that reorganizing the company around the customer is no longer an option; it is an essential competitive mandate. To achieve it will require more than lip service. This effort demands an organizational and technological infrastructure that enables a business to maintain a complete and accurate
picture -dubbed the 360-degree view- of each customer and potential customers. Capturing and consolidating information from every interaction with existing and prospective customers can only accomplish this. Then this flow of information must be analyzed as fast as possible so that marketing people can offer personalized services according to customers and prospects buying habits and where and when these activities are taking place—on which web pages, after which marketing campaigns and so on. According to Lasica (2002; 2001) and Lewis (2001), the practical demand for personalization can be seen from the needs of a company to create cost-effective marketing offers and campaigns; also other specific needs and demands for personalization can be seen by how effective website content and traffic patterns in meeting sales and service goals are.

By developing and studying appropriate personalized marketing and predictive analytic technologies, researchers are able to view customer interactions and marketing activity across multiple customer touch points from a central location. This gives them an unparalleled ability to understand how specific products and services-initial, cross-sell and up-sell-attract particular customer segments, and then allows them to design personalized integrated, multi-channel marketing strategies and messages accordingly. Thus personalized market analyses and decision-making can occur in real time, and detailed campaign information, such as response rates and profitability, can be tracked, measured and easily reported on, maximizing the effectiveness and efficiency of an organization's marketing initiatives.

This problem lead the way for more research to enhance university student web services, such as part of enhancing web-based educational systems (Perkowitz & Etzioni, 2000; Vozalis et al. (2001); Brusilovsky et al. (2002); Tsiiga & Virvou (2002)). Chaucer (1998) and Tsichritizis (1997) proposed reengineering the higher educational services in more than one area Universities as web service provider need to employ personalization technology to its needs. From the academic experience, practitioners can notice that reorganizing the university around the student is no longer an option; it is an essential competitive mandate especially in the current globalization trends. This led the needs for personalized universities websites not just ordinary websites. Designer requires knowledge about their students, their cross-cultural backgrounds as the fact that the designers, content and students can have different backgrounds, and in addition to the many common usability concerns, such as designing a good usable interface.

**Current Personalized Educational Web Services**

One of the first challenges that many designers run into when converting a static web site into a personalized web site, is deciding what to personalize. There is so much personalization possible that it is hard to determine which items are actually worth personalizing. Early in the planning process, it is important to establish clear goals that can guide you in choosing what to personalize. For instance, if the goal of personalization is to increase loyalty, then adding features to increase return visits would be desirable. On the other hand, if a company's customers usually make large purchases that involve a significant amount of research and evaluation - but customers do not benefit from return visits to the site after the purchase - then the personalization focus should improve the ease and quality of the customer's decision-making process. To review these challenges, this section is aimed at reviewing some of the current educational personalized web services. Some of these educational personalized web services are fully operational, while others still under testing and not fully personalized, just customized by
general students preferences. Other portals offered personalized services in one area only, like recruiting new students.

- La Salle University, (2005, 2010), develops a prospective student portal to build loyalty and provide prospects with a satisfying user experience. Many institutions recognize the importance of building relationships and capturing information on prospective students long before they apply at an institution. However, La Salle University is actively working to collect information on prospects and in turn provides them with a personalized and satisfying experience long before they set foot in its halls. La Salle is building this loyalty in large part via its prospective student portal, called My La Salle. The University's goal of creating an online environment for prospects and others that can be personalized to their needs and interests is paid off within two months, and without any marketing, 115 prospective students created accounts. Figure 1.0, shows the first page after the student log on, where the page is personalized by student name, personal welcoming message, personal news and announcements, and personal account information and the chance to personalize the page contents and layout according to student preferences.

- Louisiana State University (2010) builds enterprise solutions that spanned the academic, research, and administrative requirements of the university. Personal Access Web Services (PAWS), after implementation approximately 12,000 students, faculty, and staff requested access to this service. Today, almost three years later, more than 45,000 students, faculty, and staff are using PAWS. As PAWS are personalized, a person's application suite is determined by user personal relationship to LSU. For example, a student enrolled in a distance-learning course will be able to access a standard suite of applications available to all students as well as the Semester Book, a course management tool, for the course in which he is enrolled. A faculty member may access a PAWS desktop with the standard suite of applications available to all faculty members as well as the Semester Book containing his courses. In addition, when a student accesses a particular application (Personal Schedule, for example), only the courses that student is enrolled in are displayed. When a faculty member accesses the Semester Book database, user has more administrative privileges and can view more information than a student enrolled in the class looking at the same database Ethrid at al. (2000).

- MyUCLA site (MyUCLA, 2010), one of the oldest in higher education, provides a classic directory-style portal, ranging from new modes of accessing campus administrative data to relevant feeds from the UCLA Daily Bruin.

- University of Washington has developed MyUW (MyUW, 2010). This portal site uses information in innovative ways that enhance the educational mission, personalizing student data student debit-card totals, student course information and providing faculty with ideas and resources for new uses of technology for teaching. The UW portal seems to have the mission creating an online community encompassing a diverse and complex on- and off-campus
environment. Front page of MyUW, shows personal welcome and news, weather, academic planning, home pages and option to change content.

Trends and issues

According to Kvavik (2002), the new information technologies associated with portals and e-businesses are likely to have a profound impact on how higher education’s mission is delivered. In particular:

- Information technology will present the possibility of greater customization of courses and programs, combined with enhanced flexibility of delivery.
- The communication of research is likely to be more varied, with formal publication playing a less significant role, while the current improvements in access to research findings and library collections are likely to accelerate.
- To stay competitive in the new environment, knowledge workers have to stay current. As a result, lifelong learning will be the dominant paradigm for higher education in the twenty-first century. Information technology is driving an increasing emphasis on establishing and maintaining effective learning relationships with students throughout their lives. The knowledge age requires constant, individualized learning, and information technology supports such learning.
- The Internet is associated with interaction, unlike television, which is associated with passivity. As a result, the Internet becomes a far more interesting tool for distance education. Not only can students receive information, they can also practice the application of that information in the context of previous knowledge. The Internet provides much more than two-way video and voice communication. It allows
authenticated and confidential submission of homework assignments and even tests, the ability to replay lessons or information on a 24x7 basis, and the ability to collaborate remotely with other students on projects.

- University service units will become more clients focused and seamless. The new enterprise systems and organization are designed to provide students, faculty members, and staff members with greater quantity and quality, as well as timely accessibility to data that is integrated and supports institutional and personnel strategic planning and decision making. Service units will help build and support an environment in which their clients are provided knowledge and know-how to apply information to a given problem. Central administrators will drive decision making down into the organization with minimal intervention.

- Services will be provided electronically rather than in a paper mode and without intermediation by the staff. Services will be increasingly accessible at any time from any place. Intermediary services become less relevant as students, faculty members, and staff members are able to have direct contact with the producers of services.

- Value-added activities such as planning, performance assessment, and marketing play an ever-increasing role in the design of systems and services that replace improvements in transaction processes and efficiency as the primary drivers for change.

- In the past, sellers did an enormous amount of customer research to determine the buyers’ needs, preferences, and behaviors. Missing in the equation was the ability of customers to do similar research on the quality, price, and availability of goods and services. Customers were dependent upon advertising, a few consumer guidebooks, and word of mouth. This has totally changed with the browser and the Internet; now buyers can compete to the point of determining price. Customers have an enormous number of choices with the click of a mouse. And they are almost instantaneously able to compare both qualitative and quantitative data, which they can use to make a decision.

- The ramifications for the university are enormous, and an interesting example is the role of the admissions office. Traditionally, the admissions office has been the gatekeeper of information about a particular institution; now, students are routinely bypassing the office and going directly to faculty members and external sources of information via the Internet for information about programs of interest. More so than ever, it is critical that the admissions office use e-business to better understands the needs of students and customizes their services and processes to attract them to the university. The ability to fully understand the preferences and priorities of students and their parents is mandatory. It is also the case that the admissions office will need to explore horizontal relationships with external vendors, as students can apply to multiple colleges via private on-line application services. In short, the admissions office will need to use e-business to create targeted, on-line marketing campaigns, manage customer
relationships, and analyze site and application usage

**Personalized Educational Web Services Guidelines**

Western Cooperative for Educational Telecommunications (WCET, 2003) proposed guidelines for online students personalize services. Next is the summarization of those guidelines.

- Personalized web services are often a data-intensive task, as student interests change student profiles become inaccurate and the prediction quality decreases. Once student and usage models have been acquired, they need to be represented in order to be available for further exploitation. There are many methods that are classically employed for acquiring explicit assumptions about student data. Collections of such explicit information are generally called student models. Other methods used to construct aggregated information about a student interactive behavior comes from individual observations. The results of such analyses, which often serve to predict future student behavior, are sometimes called usage models. Explicit student models and usage models have advantages that make extending conventional search techniques with a personalization technique that is capable of taking account of student preferences as a means of classifying retrieved results as relevant or irrelevant. Since implicit and explicit student models each have their own qualities, it also seems advantageous to integrate both into hybrid systems, as well include such as attitudes, beliefs, controlled synchronized vocabulary, intelligent personalization rules to determine when and how students and services profiles are matched up, and using intelligent methods to build student profiles such as data mining for discovery of patterns from usage data and to aggregate usage profiles from these patterns based upon clustering of user different action and views for performing the personalization task.

- The trick to good personalized interface is to be specific without being restricted, to make sure students see not only what they do want but also what they might want. To be knowledgeable about the students without being too familiar, be helpful without categorizing students into such small representation that they have to fight the system to find the products or services they want. Universities web sites should use terms that students understand, to help them navigate the site easily. Also they need to integrate services by linking from one to another whenever it makes sense, and place the links where users will be sure to see them. They should create guidelines to ensure that all parts of their site have the same look and feel. Instone (2004) address these issues in the form of questions about how to design the interface to communicate to student “who you are”? How much feature about who-they-are do student want to know – is just admitting that they are logged in enough, or do they want every feature of personalization recognized for them to review and change? How clear should the personalization be? What student interface design principle are needed to help student understand what the system knows about them (who they are), what outcome it is having on their experience (why is this here) and
how they can beat the effects of personalization (what is missing).

- Student privacy concerns have to be taken very seriously and even if the actual risks for privacy invasion are low, it has to be addressed proactively. Key aspects of a privacy policy in order to establish trust are to tell student what is personalization and to reveal the added value of providing personal information, as well as to use collected data only for the proposed purposes. Furthermore, universities must frankly explain what information is gathering and how they are going to employ it. They must include a list of third parties with whom you are going to share the information. They must guarantee that they will not watch personal communications. For example, issue of informed consent is significant when counseling services are to be provided on the Web. For this reason, universities website should make clear the degree to which confidentiality is (or is not) protected when students and counselors communicate via Email. If possible, students should also be given the opportunity to inspect their user model and also give them the option and the ability to update or delete preferences from university database. Security and privacy infrastructures should be used that both secure user data from possible attacks while still enjoying personalization.

- To address the concern that any personalization can be preventive and the student want to see what he/she is missing in what is not personalized, and why such services recommended for him such. There is a need to look at external resources that are already available via the web and provide links to them when it is more effective to do so there are many outstanding resources already available via the Internet; link to these rather than spending resources to duplicate what they provide. Such information can help students who are interested in identify plans to pursue, based on the discovery of services that basically able to perform a task based on students request. The majority of these resources cannot be used directly for adaptation but must be processed to get hold of the initial contents of a user model or usage model (Esteban et al. 2001). It is necessary to handle various types of resources in an open network, dynamic distribution of new, existing information on multiple channels, and data integration with other information systems in highly diverse and distrusted information environment.

- Personalized web services suppose to be customized and personalized for the individual student needs. The recent web technology provides a good opportunity to deliver new integrated student personalized services, joined by connected functions, cross service limits and let the student going through a series of interactive steps with the system, which let him assess the impact of these services on his/her current outstanding, decisions, and progress. For example combine together academic advising, registration, intelligent tutoring and financial aid information as part of the same transaction (WCET, 2003). Also to present these services offerings in wonderfully fashion; allow students to start and complete many services transactions themselves. While universities should consider the opinion of all possible users and
universal interaction based on geography and style of student preferences (e.g., prospective students, current students, international student, alumni, and site visitors) and provide direct access points for each on the opening page. It is important to be familiar with the ways in which students can contact and receive help from someone if they cannot answer all their own questions through university online information and services. University web sites should provide contact information (phone numbers, fax number, and email address); make it an essential policy to answer all such queries within a limited time frame that is clearly stated. University web sites should include FAQs on costs, concerns, timing, and equipment related to university services offerings. University web sites should describe and provide the service process, state the service requirements, policies, and procedures that may affect a student’s decisions. University web sites should provide such as offer options to save and re-open the application as well as track the application once it has been submitted if needed (WCET, 2003). University web sites should provide and promote a variety of nontraditional services including: orientation services, academic advising, career services, technical support, personal counseling, group and community services, support and tutoring services, personal development, and E-publishing services.

- Depend on the following facts that the key characteristics of future universities will unavoidably move more and more into a student-centric model in order to increase competitiveness (Bizhan, 2003). A student's university web site that delivers the most personalized, interactive, real time student service possible online, noticeably improving the quality of student communications, empowers students with immediate access to personalized information (Pitkow et al., 2002). Such system will provide insights on the student’s perceived impressions on the effectiveness of the personalized web services as mentioned in the significant of the research section

**Implication on of Educational PWS on the Research**

A summarization of personalized educational web services current issues is presented. These issues have been addressed and discussed to build this study knowledge about this area of research and to construct further conceptual model and information architecture. Many of the personalized web services issues and technologies in business world adopted in this study, were based on the fact that were students considered being as the main customers of the educational environments. The technologies under discussion will also influence this research to understand on how institutional services are organized and delivered and the very strategies around which institutional services are developed. Also the discussed guidelines can be very helpful for developing further research instrument and implementation of student personalized web services prototype.
Conclusion

This study provides insight into benefits on the student’s perceived impressions on the acceptance of the personalized web sites services. Also this study provides helpful benefits specifically to the universities and students through the following areas of development and implementation:

- Provide a unified personalized central source of information and services that become ease to use for the student, which allows web-based deployment of common academics data on dynamically customized student information over the web.
- Give the university the ability to profile and respond to students in an individualized fashion based upon their past and current contacts and behavior, and will nourish the student with the missing personal services that he needs from his university.
- Provide immediate delivery of authorized academic-critical up-to-date personalized information, according to student preference, job function and security privileges. This will enable students to evaluate performance, drill into details and take decisive action. Also improves students’ satisfactions by quickly recognizing personalized academics opportunities without sifting through irrelevant data.
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The TURMaC Model for Management of an e-Learning System: A Result of Experience at an Undergraduate College in Dubai in the United Arab Emirates

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Abstract
This paper takes a look at the various factors and aspects that are important in e-learning from an institutional point of view. Educational institutes have different options in implementing e-learning solutions, but that is just the start of the story. The most important aspect is the successful management of e-learning where an institute can use a model for e-learning management. Especially a model that is simple, yet still proves to be beneficial for majority of the stakeholders. All educational institutes are not the same and they will differ in their characteristics. The settings under which institutes operate and the educational products that they offer can also be unique. A college or university community itself differs from one place to another. What works at one educational institute may or may not work at another in the same or different settings. An institute can have different stakeholders, it may learn from the experience of users and stakeholders of its own e-learning system and then formulate or suggest improvements. These improvements may come as enhancements of the current e-learning system or complete change or alteration of the system. Based on this experience the institute can rewrite its own strategy and policy for e-learning. Institutes can formulate different strategies depending on what works for them and their stakeholders. In this paper we present our experience of e-learning systems, the issues that we faced, the feedback of our stakeholders, the options that we had and the changes that we made. We review the existing e-learning management models and present our TURMaC model for the management of an e-learning system.

Keywords: E-Learning, E-Learning Management, Learning Management System, Online Education, United Arab Emirates

Introduction
One of the oldest assets in the history of mankind has been knowledge. As time passed and things changed so did the modes of disseminating and obtaining knowledge. New methods and techniques are continuously being used in delivering education and acquiring knowledge. The last 50 years have seen several changes in these two fields. The world has witnessed the commercialization of education into different forms and the rise of private educational entities to benefit from the growing importance and need of education. Thinkers have leveraged on all other developments in the society to obtain benefits and get more share of potential students in the market. The advent of the Internet has simply been phenomenal in all forms of society,
just education. Especially over the last decade, electronic learning or simply e-learning has been getting a lot of attention all over the world. The global reach of the Internet has brought the education provider and the knowledge seeker within each other’s reach. Several educational institutions, big or small, public or private are now slowly experimenting with the possibilities of online education delivery. Some have been early adaptors whereas others have been laggards. In this arena, the competition is global as educational institutions from all corners of the globe can compete with one another for students. Students can come from any part of the world and from any age group to get different types of online education from institutions. We prefer to refer to the students as learners, since they are not typical students from that old classical point of view where one would think of students as young pupils sitting in the classrooms.

Since this is a global playing field, different regions of the world will have different extents of online education being offered. University of Phoenix (2010) in United States of America and Open University (2010) in United Kingdom are prime examples of institutions that have students from all over the world enrolled in online programs. E-learning initiatives are also being taken in the Arab world particularly in the Middle East. The United Arab Emirates - UAE comprises of 7 Emirates and was founded in 1971 (Library of Congress, 2007). The Ministry of Education and Scientific Research – MOHESR (2010) looks after the higher education in the country. Its subdivision the Commission for Academic Accreditation – CAA (2010) is responsible for the accreditation of the higher education programs in UAE including those that offer e-learning. Different e-learning practices are being adapted in universities, colleges, schools and other educational institutions in the UAE. We look at the experience of over 4 years in an accredited undergraduate college in the UAE in the city (Emirate) of Dubai.

**Literature Review**

E-learning has now become a general term and it encompasses many different areas (Aranda, 2007). An acceptable definition of e-learning by Tavangarian (2004) is: “e-learning comprises all forms of electronically supported learning and teaching where the Information and Communication Technology systems, whether networked or not, serve as specific media to implement the learning process”. A study done in UAE (Zualkernan et al., 2006) suggests that each institution is unique and requires a customized e-learning strategy.

E-learning has witnessed internationalization and commercialization (Gerhard, 2002). There are many questions that are often asked about e-learning especially in Arab countries. It has been reported by different studies in Middle East (Shehbaat, 2009; Khoualdi, 2006 and Mahdi 2006) that using online education does improve learning significantly in the Arab world. A comparison of these studies conducted in this region show that there are common issues that arise about e-learning in Arab countries such as:

- Is there value for money?
- Is it fit for the purpose of the university?
- Is there resistance from the universities or people in them?
- Do the teachers have expertise and experience in using e-learning?
- Are the students ready and have the necessary language and technology skills to benefit from e-learning?
- Is the government in support of e-learning?
- Is the society eager to adapt the new trend of e-learning?
Some Arabic authors (Assalem, 2004 and Attudari, 2004) write that for e-learning to be successful in the Arab world it should aim at the following:

- Spreading the use of technology
- Making teachers and learners more technology literate
- Creating an enhanced learning environment
- Reinforcing the educational institute and society relationship
- And increasing interaction between learners and teachers

In this paper we present the experience that we had in our four year period with e-learning at Computer College (2010). The college is located in Dubai, UAE and offers 2 year programs that are accredited from the CAA. One program is the Associate Degree in Business Administration and the other one is the Diploma in Computer Studies. The students are predominantly Arabs and there are around 400 students currently enrolled in these 2 programs. The college was founded in 1993 when it was licensed by the Ministry of Education (2010) but from 2001 it came under the supervision of MOHESR. The college had initially purchased a pre-built e-learning system or Learning Management System (LMS) from a software developer in Jordan. The college implemented this system in 2006 and used this system till Spring Semester of 2008. We did a survey and received feedback from various people about using this system. This old system was heavily criticized by users as having lots of drawbacks. The users and other stakeholders were requesting for a new e-learning system and based on our study we had to make suggestions for the new system.

**e-Learning or Learning Management Systems & Options**

An e-Learning or Learning Management System (LMS) can offer an online learning environment for teachers and students with support for several types of activities. Usually the facilities that can be provided are delivery of learning materials, curriculum details, other documents, online assessments, file sharing, email, announcements, chats, discussion forum etc. The degree of utilization of the types of facilities provided by an e-learning system is another area that merits further study. There are different providers of e-learning and LMS solutions such as commercialized products like WebCT (2010), BlackBoard (2010), Desire2Learn (2010) and open source like Moodle (2010). Pre-built or customized systems can also be purchased from software developers. Different sized budgets can fulfill different requirements of educational institutes depending on their ambitions. However, organizations must keep in mind that the main aim of any educational institute should be to utilize the available and affordable means to enhance the learning process for the students in a way that they students also find useful and helpful.

Details of the e-learning systems used at different universities across UAE are not known. A study at the UAE University (Almekhlafi, 2009) was done based on the use of BlackBoard e-learning system. But such commercial products are costly for smaller institutions. In UAE there are federal and public universities which are often owned by governments, ruling family members or other entities. They can have big budgets and can afford to implement the commercial tools for e-learning. But smaller private institutions like ours, however, cannot afford the expensive commercial products. But that does not mean that we have to lack behind in the services that we offer to our students via e-learning.

**Objectives of the Study**

The field of e-learning is vast and we need to be specific of what is being examined and the context. There were 2 objectives of this study.
The first objective was to collect the feedback from our users and stakeholders after their experience of using an already implemented Learning Management System, and then based on that suggest and implement a new Learning Management System. The second objective was to identify factors that the stakeholders perceive to be important in the management of an e-learning system and suggest an existing model of e-learning management to use, or develop a new model that can be used for our college.

Methodology

For this study we took the following steps. First we identified and interviewed all the stakeholders for their feedback. From the input of the stakeholders we identified the important factors that the stakeholders perceive to be important in the management of an e-learning system. We examined all the available options to implement an e-learning system and made suggestions. After discussion with the stakeholders our suggestion for an in-house built e-learning system was approved. Furthermore, based on the factors identified during the feedback from stakeholders and after reviewing the existing e-learning models, we developed our own model for management of an e-learning system that we named the TURMac model for e-learning.

Findings

We present the findings from the study as the feedback from the stakeholders and the new TURMaC model that we developed.

The Stakeholders and their Input

Studies (Arabasz, 2003 and Hurley, 2002) have identified a variety of stakeholders involved in e-learning in educational institutes. It is very important that the stakeholders are identified for the successful management of e-learning. We identified the following stakeholders of the e-learning system at our college: the management staff, the IT staff, the existing students, the alumni and the faculty. All of them gave us important feedback about their experience with the old system and they also gave us their input for their requirements, recommendations and their suggestions.

Feedback from Existing Students

We interviewed 155 students and obtained their feedback. Some of the important suggestions by the students were as follows;

- The system should be user friendly and it should not be cluttered
- Students should be able to retrieve important documents quickly
- Web pages should be retrieved and displayed quickly
- Students should not have to go through lots of links and mouse clicks to use the system
- The actual online content provided is very important since that is what the students actually use the most
- The system should focus on the facilities and features that the students actually use
- The students were not interested in top of the line or state of the art systems with latest bells and whistles
- The students were not affected by whether it is proprietary, open source or in-house built system

Feedback from Alumni

We interviewed 25 graduated students from the alumni and obtained their feedback. There suggestions were similar to the suggestions by the existing students. They gave the following suggestions

- The system should be user friendly and it should not have unnecessary features
- Important documents should be quickly accessible
• They should not have to go through lots of clicking and logons to use the system;
• The online content should be kept updated regularly
• Faculty should be told not to upload huge content files or unnecessary files
• Alumni were also not concerned by whether it is proprietary, open source or in-house built system.

Feedback from Faculty
We interviewed 20 faculty members who were using the system. The important suggestions from the faculty were:
• They want the system to be easy to use
• Faculty should be able to upload content and navigate easily in the system
• Faculty should not have to call the IT support just to figure out how to use the system or the technology and in troubleshooting
• Faculty was also not concerned by whether it is proprietary, open source or in-house built system
• Faculty was concerned that the IT support should not blame the system for its faults as they had been doing with the old system

Feedback from I.T. Staff
We interviewed the I.T. support staff team that was responsible for the maintenance and support of the old e-learning system. The important suggestions that they gave were:
• It was very hard for the IT staff to setup the old system and they had to spend a lot of time in the system setup every semester
• They said that the vendor of the old e-learning system has closed business and there is no support of the system technology available to them
• IT staff wanted the new system setup and maintenance to be easy
• The system should allow them to integrate the systems database with the existing students’ database of the college
• IT staff was concerned by whether it is proprietary, open source or in-house built system
• They preferred to develop system in-house since they would be able to control the technological options for the system

The IT team said that they would prefer to develop the system in-house, since in that way it would be very easy for them to maintain the system and make updates. This would also enable the IT staff to be able to extract the students and teachers information from the exiting college database. They said that they already have the necessary personnel and experience to build the system. The IT Manager had actually developed a similar system at another university in UAE and which was used there for 6 years.

Feedback from Management Staff
We interviewed the management staff that was involved directly or indirectly in the e-learning process. This included the following personnel:
• The Chief Executive Officer (CEO),
• The Chief Academic Officer (CAO),
• The Business Administration Academic Program Manager,
• The Computer Studies Academic Program Manager,
• The Language Coordinator,
• The Librarian,
• The Registrar

The concerns of the CAO, the Program Managers and the Language Coordinator were that that their faculty, staff and students should give positive feedback about the new
e-learning system. The students also should be able to use the system with ease. The actual interaction between the students, the faculty and the content is very important.

The CEO was concerned with the cost of the system. He said that the e-learning system should not be expensive and was not in favor of commercialized software. The other staff did not give any significant suggestions except that the new e-learning system should serve the purpose well for the college and it should be managed properly and regularly. The librarian said that he should be able to make announcements and upload notices on the system. The registrar said that she would like to ensure that all students’ subjects are updated regularly on the system.

Summary of all the Feedback
We summarized that the new system should be:

- Easy to use by the faculty;
- The students should also be able to use the system easily;
- The content should be kept updated and useful;
- The interface should be user friendly and not cluttered;
- The system must be easy to maintain by the IT support staff;
- And the budget requirements should be affordable.
- The technology should not be difficult to maintain and troubleshoot.

After collecting feedback from these different stakeholders, we reviewed all the options available to us to get a new e-learning system. We made the suggestions to the stakeholders and got their feedback about the suggestions.

The New eLearning system
Based on the feedback, our suggestions and further discussions, it was agreed to develop a new e-learning system in-house that would be connected to our existing students’ database. Designing and implementing an e-learning system can be challenging as stated by Zhen (2009) and we found the four “C” principles presented by Rong et al. (2004) to be useful in the implementation. The new system was developed in summer of 2008 and implemented in Fall Semester in 2008. After the implementation of this new system everybody started using the new system and we also began a study of the new system which is another work in progress and expected to be published at a later date. We had found Chung et al. (2007) principles of good practice in e-learning as a helpful guide for the stakeholders in using the system.

Our TURMaC Model for Management e-Learning
We reviewed different studies for models of e-learning (Selim, 2007; Cheung, 2009; Lahwal, 2009; Qiang, 2008; Chen, 2010 and Dongyan 2008). We had already interviewed the stakeholders and found out the important factors from their point of view for the successful use of an e-learning system. Based on both of these and from our experience we developed the TURMaC model for management of e-learning.

The TURMac model is a 5 points model as we identified 5 important factors and the stakeholders that determine the success of e-learning based on our experience. The model is shown in Figure 1 and TURMaC is an abbreviation of the following words:

- T =Technology
- U =Usability
- R =Resources
- Ma =Management
- C =System Core
Technology
The technology of this era is advanced and ideally it should not create any problems. Different alternative technologies in terms of hardware, software, communications and networking services are available for different budgets. The important factor is that the right technology should be used to deliver the content. The technology should be easy to access, maintain and troubleshoot by faculty and IT team as well. Competency of the learner, faculty and IT personal is also important in using the technology.

Usability of the System
The other important factor to consider is the usability of the system that is implemented. From our experience we found that the pre-built system that we had purchased at Computer College was not very useable as the feedback from students, faculty and the IT team showed. What the experience showed us was that the system should be user friendly and it should serve the purpose well. It is not important to have bells and whistles. The system should focus on the facilities that are actually being used by the students and faculty.

Resources
From the management perspective, the problem regarding resources arises when the budget is concerned. An educational institute has 5 main options in setting up an e-learning system

- Purchase a license for commercially well known e-learning systems
- Get a customized system developed by a software developer
- Purchase a pre-built system from a vendor
- Build a customized system in-house
• Use an open source system

For the options the institute must consider what is within reach and what is achievable. Only after thorough discussions with all stakeholders the institute should make a decision. We followed the same guidelines and after detailed discussions with all stakeholders we had decided that we shall build a new e-learning system in-house.

Management of e-Learning

The proper management of the e-learning system itself is very important. It also includes the support of the institute management for the e-learning process. Our experience shows that it is better to win the management support by demonstrating the tangible and intangible benefits of the e-learning system. Suggesting proper alternatives to the management for e-learning can be very useful to selecting the best available solution. A solution that can fit well for the requirements and unique circumstances of the institute will surely prove to be a success. It is both the support of the management and the management of the e-learning system itself that are important in the success of an e-learning imitative in the long run.

System Core

A core is always a very important part of any system. It is at the core that the heart of the system lies. For our model we identified the most important components in an e-learning environment for the core. The system core part of our model comprises of following three components and the Interaction between these components

i. The faculty
ii. The content
iii. The learners

The system core is shown in Figure 2

![System Core of the TURMaC model](image)

It is the most important part of the system so we refer to it as the system core. It is at this core of the e-learning system that the actual transfer of knowledge and delivery of education takes place. The interaction between the three is very crucial for the success of an e-learning system.

Stake Holders

The other important aspect to consider is the stakeholders in an e-learning system. Our model identifies internal and external stakeholders to be considered in management of e-learning. The exact internal and external stakeholders may vary from institute to institute and we leave it up to the institute to identify these for them.
Conclusion

As can be seen from this study that an e-learning system developed in-house can serve the purpose in typical setup where an e-learning system is actually complementing a traditional learning process. Therefore, it is better that financial resources are saved by using an in-built system that is easily updated. After the implementation of the new system, the feedback received from all the identified stakeholders and visiting personal had been positive. Furthermore, there is no need to pay a huge amount since everything from development to maintenance is done in-house. We only have to pay the hosting cost to the service provider.

Therefore, we recommend such a setup for other colleges especially those offering few undergraduate programs of 2 year durations or less. As we had said earlier that each institute is unique and what works in one may or may not work in another. The TURMaC Model presented in this paper can be applied to any e-learning system. This model identifies Technology, Usability, Resources, Management and System Core along with Internal and External Stakeholders as important factors for e-learning management. We believe that the model can be used for better management of e-learning in other institutes. There are good opportunities for other larger educational institutes in the country to publish their own experiences with their e-learning systems and the feedback of the stakeholders.
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The Integrated Learning and Certification Space: An IT-based Structure to Improve the Success of Students at the University of Réunion Island

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Abstract
This article aims at presenting the Integrated Learning and Certification Space (ILCS), a new structure built at the University of Réunion Island to increase students' success in general and in IT (Information Technology) and languages more particularly. Those skills are transverse and required in any faculty that is why they are central.

The goal is achieved by combining computer-based self training along with tutoring. Students thus not only acquire the needed knowledge but the way to learn new ones using computers and information systems too, starting a virtuous circle.

Dedicated certifications are associated to conclude the process in order to validate the level. Those certifications can be standard ones (they are not linked to a course), allowing students to prove their skills. As a massive number of students are to take the exams, a specific setup is proposed.

Keywords: Integrated Learning and Certification Space, IT-based learning, mass certification, re-socialization

Introduction
Along with research, education is one of the priorities of every university. The French University of Reunion Island, located in the south-west of the Indian Ocean between Mauritius and Madagascar, proposes many courses leading to European standardized diplomas.

However, firsts years students encounter many difficulties due to multiple reasons: transition between college and university, lack of methodology, etc. Moreover, lots of them come to the university as a default choice, waiting for better opportunities to come. Thus, during the first year, the success rate is rarely higher that 50% (OFIP, 2008).

A special plan has been set to create these opportunities, called “Réussir en licence” (literally “Succeed in BA or B.Sc”). One of the proposals is to rely on Information Technology (IT) to facilitate the acquisition of new skills and propose independent dedicated certifications in addition to the main diploma. Actually, a student who fails to achieve the whole course can leave the university with those proofs of competences instead of nothing.

This article presents the way this goal is accomplished thanks to an original structure called the Integrated Learning and Certification Space (ILCS). In a first part, we will show an overview then we will focus on the learning activity on the ILCS. Finally we will deal with the evaluation step.

The Integrated Learning and Certification Space
In the field of e-learning, many directions have been explored, raising new questions
about the efficiency of the various methodologies compared to their cost (T. Atle Hjeltnes & B. Hansson, 2005).

The first step in proposing an e-learning solution in higher education used to be the implementation of a Learning Object Repository (LOR) in the university, completed in 2004 in Reunion Island. It was then followed by the addition of a platform connected to it. Although being necessary, this approach was not sufficient because content was produced by pedagogical staff but not accessible enough to be used practically by the students. Moreover, they were lacking the skills needed to work with such a system. Addressing these limitations led to a new deal. One of the most promising directions consists in re-humanizing e-learning by recreating the social links (Chatti et al, 2007). We subscribe to this point of view and the ILCS is one major response at the university of Reunion Island.

**Concept**

The ILCS is firstly a physical place located in the main library on the campus where teachers, tutors, learners and pedagogical staff can work and meet. It can be viewed as an adaptation of the co-design platform concept (Conruyt et al, 2006) which initially aims at defining new e-services that fulfill users needs. The difference here is the goal: increase success and build new competences. To complete this, e-services have been deployed since many years: the RUNCO project (Payet, 2003) was the leading path to provide online services such as course platform, virtual office, etc. Most of them are set since a couple of years (Payet & Rakotobe, 2008). Although being adopted by many university members, those tools are not sufficient and could target a new public, less used to computers. Hence the need for a physical meeting place to reify the learning process assisted by IT.

Thus, the room is fitted with 20 up-to-dates computers and recent multimedia equipments such as an interactive whiteboard. The idea is to have a digital copy of the activity that takes place in the space for future reference. The digital media is to be used everywhere outside the campus. It is not self-sufficient. One of the main particularities is the proximity of many assistance means that are gathered around users to solve locked situation ranging from simple questions about lost passwords or WIFI-connection to problems regarding specific subjects. The ILCS is also a solution to the question of taking computer-based exams for massive groups of students. It proposes a fleet of net books that are deployed in an amphitheater purposely, allowing hundreds of student to take the exam without requiring lots of resources: computers, supervisors, time-slot, etc.

**Actors**

Four categories of actors can be found on the ILCS.

Students, or more generally, learners. They need to acquire skills in order to take an exam or a certification. They often have to be guided during the learning process. For instance, they are looking for advices on the strategy to overcome a difficulty in a particular course. Resources exist but they lack the social recommendation that lead to them. This link is recreated by the second category of actors: the tutors. Tutors are senior students who have spent at least 3 years at the university and hold a degree. Thus, they can share their experience as far as campus life is concerned as well as their knowledge towards course-related subjects. They are dedicated to support student activity.

Teachers use the ILCS to product digital pedagogical content and activities that accompany their lessons. Of course, they can communicate with students and tutors to
adapt their contents. During special sessions, the space can be used for in-situ training gathering a teacher and his/her students for real-time interactions.

Finally, a supporting staff is present around the ILCS. They belong to the Digital Usages Department (DUD) on one hand and to the Languages Department (LD) on the other hand. The DUD staff is in charge of the pedagogical information system. They manage the digital work space (http://etudiant.univ-reunion.fr), the course platform (based on Moodle), the virtual office and other tools that support the activity. Their proximity to the ILCS allows instant resolution of problematic situations that used to take days to be addressed in the past. Finally, this IT usage Department also assists teachers in the making of their digital courses.

One person can have more than one role at a time depending on the situation. For instance, an administrative staff member can become a learner during its free time in order to prepare for a certificate in English.

**Place**

Main location of the ILCS is an open space connecting the entrance hall of the library, its press room and the DUD & LD offices of the university. The different actions depicted before are physically set as shown on the Figure 1. Glass windows bring light in the space and allow to monitor the activity from the connected rooms, specially from the DUD offices.

**Learning Activity**

From a general perspective, the open space is an intermediate between the teachers and the learners, the digital support allowing several synchronous or asynchronous communication schemes. Therefore, two major activities are...
realized: firstly digital content production, involving teachers and secondly acquiring new competences from a learners point of view.

**Teachers Side Activity**

The idea here is not to break with the traditional lesson but to enhance its mechanisms by bringing ITs advantages to it. In this context, teachers are the content producers, not necessarily physically but from an intellectual point of view. The goal is double: students are provided with online resources to support their work and teachers themselves are getting progressively used to relying on them for all their courses. The supporting mission is led by the Digital Usages Dpt. staff. Their role is certainly not to “teach teachers to teach” but to adapt their pedagogy to the medium, as required (C. Yu, 2010).

Many common e-learning tools are proposed, ranging from simple file sharing systems (with rights management) to the complete platform (Moodle), which correspond to the evolution: teachers tend to ask for more IT-supported features, such as groups management, self evaluation, activity reports, etc. A large number of students can benefit from the system that allows to monitor the lesson from a global point of view as well as from an individual point of view.

**Learners Side Activity**

The first step for students is to define a field of knowledge that has to be learnt or improved and then determine an objective. With the assistance of teachers, a progression path is defined based on the digital resources. Those resources are produced locally as seen before, but can also come from bought/leased software like Online Format Pro (interactive SCORM lessons with serious gaming) or the Tell Me More Languages learning collection. What is interesting here is their inclusion in a global pedagogical process: teaching staff can point out the different parts to acquire prior to evaluation. Proposing digital content policy has also moved from centralization (with the LOR concept) to indexation (with the ORI-OAI system, based on the OAI-PMH protocol (Aschenbrenner & Kaiser, 2005)): the resource is located anywhere but indexed in a central directory along with its metadata, which facilitate its re-use.

Thus, working with the resources is the second step of the activity. It is the longest part from a student point of view and can therefore generally be practiced in and out of the ILCS, at home for instance. Entry to the virtual workplace is managed by a Single Sign-On system leading to a portal gathering all the services. This portal is based on the software provided by the portal Consortium which is a reference concerning high education.

When a difficulty is encountered (on or outside the campus), the learner come back on the space to solve it. This is the third step. Tutors on the space are the first line of action. As senior students they are able to explain how to solve the problem in a friendly way, not a hierarchic one. Nevertheless, there are cases where they can not address the issue. That is why teachers and specialists are the second line of actors that assist students. This is not far from what they have been doing for years but helped here by the digital mediation. Here is how the social aspects are emphasized and can be continued trustfully in the digital domain after the real session and all along the learning process until the final assessment. This last step is often explicit because a certification is demanded to access to a particular job. The fact that a large numbers of students are to take them is new and demand a specific setup managed by the ILCS.

**Mass Evaluation of Students**

Using computers to achieve mass certification is the chosen solution. That phenomenon is
pretty new because lot of legal work has to be done in order to validate the process from technical, pedagogical and administrative points of view.

Among all the certifications, languages related ones are the pioneers. A few of them are now standards worldwide like the TOEFL, the TOEIC or more recently, the CLES. Certifications about IT are beginning more and more popular too. The C2i (‘Certificat Informatique & Internet’) is dedicated to this domain. This is a French certificate, supervised by the Ministry of Education. Universities only are allowed to propose it. They are obliged too, hence the need for a mass certification management. Finally, an electronic evaluation can be preferred for any lesson taught at the University of Reunion Island, regardless of the considered domain.

The session is prepared the same way whatever the course is: teachers prepare the exam’s subject on the Moodle e-learning platform. Lots of pedagogical activities are possible: composing directly in the web browser, posting files, multiple choices questions, numerical questions, fill-in-the-blank questions, etc. The three last ones can be corrected automatically saving a lot of time.

A few exams are imported from institutions outside the university such as the TOEFL, which is provided by its editor, ETS. But, most of them are made by the local teachers, assisted by the DUD office.

The taking of the exam demand lots of computers used intensively for a very short time, because of all the schedule constraints of the learners. This is not compatible with the availability of most computer rooms. To address those constraints, the ILCS is equipped with 150 Netbooks running both Linux and Windows 7.

Netbooks are small computers with a heavy-duty battery. Their computing skills are not sufficient for multimedia creation but they are powerful enough for exams. An alternative battery pack set is available so that the machines can run 8 hours a day, with a 50% safety margin.

The 150 Netbooks are configured using an image server, major updates being applied during the annual closure. They are deployed in an amphitheater fitted with extra WIFI stations so that the whole exam session is taken without any wire to attach to the computers, apart from the anti-theft cable. This setup is also ecological, one Netbook consuming about 25W of energy at its maximum workload, which is far lower than usual desktop computers.

WiFi network used can be set to multiple configuration profiles, enabling or disabling specific services only during the time of the session.

Once the exam is over, results can be exported for correction inside or outside the university and finally the marks are transferred to the administrative staff for treatment, as every other course.
To sum-up, the whole process is depicted on the Figure 2. Teachers activity is shown on the upper part whereas learners activity is on the lower part. Both are put in parallel in order to see the links between the actions. Tutors have a central part in this process: although seeming to be restrained, they are essential, as cement between the two main populations.
Conclusion
As we saw, the ILCS is a facilitator, the natural place where all the actors of the process of competences creation meet, helped by information technologies. The goal is to increase students ability to learn with machines too, without losing the social link with the pedagogical staff and the other actors. Doing so, they can validate certifications, sometimes independently of the diploma they are preparing. Those certifications tend to become more and more required when applying for a job. For instance, the C2i is now mandatory to be a teacher in primary, secondary and high schools.
Beside the practical aspects, the ILCS is perhaps the pioneer of a new face of the e-learning, maybe a response to the ‘crisis’ depicted by (Cronje, 2006). The next step would be to extend the social link during most of the steps in a persistent way. Of course, tools exist: forum, chat, etc. The trouble is that users are not motivated enough to use them. For instance, the university forum channel is only used by a few dozens of students, out of 12,000 and very punctually for a particular problem. Therefore, we have to think of another approach to create and make motivation grow. An immersive virtual universe could be one of the solutions, as illustrated by what happen in the videogame industry. A prototype of such an environment was realized in our university in 2008 and showed promising results (Sébastien, 2008). Technologies from 3D Massive Multiplayer Online (MMO) games such as World of Warcraft were used. The resulting system had a great adaptation rate even from people not used to those games.
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Automated Feedback to Facilitate the Understanding of Filmed Best Practices

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Abstract

One popular way of transferring knowledge about professional situations, is to describe best practices to students. A best practice may, for instance, describe how some professionals successfully solved a difficult problem in an organization. At the University of Stockholm we have experimented with replacing lectures with filmed best practices. The films show dialogues between teachers solving a problem and they are then available in a YouTube like format on the course web page. The weakness of this strategy is that it does not allow for direct communication and interaction between the students and teachers. We will demonstrate an approach to solve this problem by allowing the student to test his knowledge by getting automatic feedback concerning the understanding of the films. This was done by letting the students answer questions directly after seeing the films and then provide the student with an automatic feedback concerning if the feedback was right or wrong.

Empirical tests show that the method works well. We recommend companies and universities to try similar methods. The empirical data strongly suggested that it is worthwhile to invest in the proposed strategy. The arguments for this, is that it is economically feasible and also pedagogically effective.

Keywords: Instructors’ Best practice, interaction, filmed lectures, automated feedback

Introduction

When replacing live lectures with online-recorded lectures students have difficulties keeping their attention fixed on the lecture for a long time period. There are, however, many different ways to catch the attention of students in online lectures. One of these is to present an interesting story that stimulates the curiosity of the student. In order to make such a story interesting it may be necessary to include a feeling of action or realism in the films. To just tell a story can just as well be done via textual descriptions in the course literature which indicates that the motivation for an online lecture is that it should be more motivating for students than a textual description.

In this paper we will present how it is possible to produce situated descriptions of course material in films. With situated we mean that the presented knowledge is related to problem solving in a specific situation. The situated presentation facilitates for the student to catch the essence of the knowledge and the situated presentation is also the base for a feeling of drama in the filmed presentation. How this can be done has been explained by Reeves and Nass (1996) in their work “The Media Equation: how people treat computers,
television, and new media like real people and places”. Similar approaches to situating knowledge can be found in the area of narrative pedagogy (Draper, 2006). Other research results which indicate how you can use narrative pedagogy in video-clips can be found in Burke (1969), (Courtes & Greimas 1976) and (Labov & Waletzky, 1967).

System interaction with students, when teaching online courses, has been tested when training physicians in the health care area. This has been described in Fors et al (2009), in Bergin and Fors 2003 and in (Hardoff & Schonmann, 2001). Another area where automated feedback to students is often used is in the learning of languages (Rieg & Paquette, 2009). The results from literature studies of above references indicated the advantage with combining storytelling of course knowledge with some kind of automated feedback to students’ reaction to the stories.

**Best Practices**

One popular way of transferring knowledge via storytelling of how professionals solve problems, is to design descriptions called “best practices”, which consist of a collection of well-established methods that are effective at delivering a particular outcome or solving a particular problem. Best practices are engaged in different domains such as governance, business, performance management, IT management, quality assurance and software development (Graupner et al., 2009). Best practices can be described as the most efficient (least effort) and the most effective (best results) method for accomplishing a difficult task or achieving a goal. The implementation of best practices should be done with care. Best practices should be implemented in a selective manner based on their relative contribution to the organizational goals and objectives. Hence, it may not be possible to implement a whole set of best practices at once while having limited resources (Xu & Yeh, 2010).

Best practice aims to improve the organizational efficiency and the repeatability of work in an enterprise. Thus, interactions between people are facilitated through conversations, collaboration and ad-hoc decision making. It is questionable whether traditional education-flow are appropriate to implement processes identified in filmed best practices, especially in domains where high-skilled professionals work in contexts requiring creativity and flexibility.

The focus is to bridge the gap between the high level abstractions which is available in best practice methods, deriving tasks that can be automated, and retaining the flexibility of storytelling interactions among people (Graupner et al, 2009).

Santoro et al (2010) describe stories as a powerful communication mechanism that can be used for many reasons for instance entertainment, teaching or knowledge transfer. The structure of a story combines the rational with the emotional and the objective with the subjective. We noticed that storytelling is a good task to elicit tacit knowledge. Hence, its popularity and importance led organizations to adopt storytelling as a knowledge management tool.

Another argument for this comes from Roche & Sadowsky (2004). They claim that storytelling is extremely effective in transferring knowledge because “people think in a narrative way, rather than argumentatively or pragmatically”.

In storytelling, we are conveying knowledge and tacit elements of the teller’s knowledge. Thus, we have chosen film to transfer knowledge via best practice because sometimes a story can be vague in elements description of explicit knowledge. A film can, on the other hand, be combined with personal expression of physical, emotional and informational aspects (Santoro et al., 2010).
At the University of Stockholm we have experimented with replacing lectures with filmed best practices. The films show dialogues between teachers solving a problem and they are available in a YouTube like format on the course web page. It is very important that the content in the films of best practices that are shown to students contain knowledge that the students estimate as being interesting. Students want to understand why they need to learn specific types of knowledge. Therefore they become motivated when the knowledge they learn is directly related to the professional situations that they may face in the future.

**Problem Area**

Even if it is possible to make online lectures entertaining by infusing some kind of drama into them they still have a disadvantage in comparison with live lectures. The weakness of online lectures is that the interaction with the students is missing. Students cannot ask questions and teachers cannot ask questions to students. This makes it difficult to check if the students really understand the knowledge that was presented in the films, which in turn makes it difficult to adjust the lecture to the students understanding of the lecture content. And thus it is also difficult to make further recommendations concerning which strategy the students should have in further studies to secure that they have learned the necessary knowledge.

**Specific Problems with Interaction in Distance Courses**

While the distance course technology can be used for delivering knowledge, the distance course systems often face insufficient learner-content interactivity and flexibility as a result of their passive and unstructured mode of providing instructional content (Zhang et al., 2004). Hence, the interactivity in distance learning has become an important subject because of the less face-to-face communication methods. The main goals for distance learning developers are raising the student’s motivation to learn and arousing their intellectual curiosity. Thus, to achieve high learning effectiveness, we must identify the role of interactivity in e-Learning (Yamamoto & Miyashita, 2008).

Roblyer and Ekham (2009) found that the main factor in distance course to determine course quality is the perceptions of the students in interaction degree. This degree of interaction leads to have a direct impact on student achievements and satisfaction. They made a rubric for faculty to determine the degree of interactivity after they noticed the different view of interactive qualities between faculty and students. Hence, the focus of faculty must be on course design and teaching strategies to reach the maximum satisfaction of interaction. On the other hand, students should be more responsible in learning by starting the initiative request for clarification feedback.

One initial approach to insert an intensive interaction between the online lectures and the students was to convert the lectures to online games. Such an approach is well known to motivate students (Gredler, 1996) and is also known as an efficient way to transfer knowledge in relation to the level of skill in the student. The advantage with games is that they provide a very high level of intense feedback to the students. We found, however, that the critical weakness with designing online games is that the production of such games is a very costly endeavor. It can be done for courses with a limited amount of basic knowledge like when the students learn basic mathematics (Caprotti et al., 2006) or learn new languages (Andrews, Haythornthwaite, 2007). However, virtual games are not well suited for higher level courses with larger quantities of complex knowledge, just because it is too costly to
produce these courses for a limited number of students. In courses with a large amount of knowledge to be learned it is very important that the students are able to receive feedback on a considerable amount of information (Bonk, 2002, Brandon & Hollingshead, 1999). However, teachers often find it hard to devote the needed time to give students feedback (Johnsson et al., 1992), but if there existed any way of designing an automated feedback this could solve the problem. In our approach we allow the e-Learning system to ask the students questions after each little video-clip and this also allows the student to take the system’s advice about how to proceed in the studies to get more knowledge in the area.

**Purpose**

The purpose of the study was to find evidence for the usefulness of giving students automated feedback about their understanding of the knowledge presented in video-clips. The automated feedback is not only intended to inform them about their level understanding, but is also intended to guide them with instructions of how they could improve their understanding in an area. The system does this when they have failed to provide a good answer to a question. The students were asked questions directly after seeing the films and then they were provided with an automatic feedback concerning if their answer to the question was right or wrong and what measures they could take to improve their understanding if they had provided the wrong answer. The following figure illustrates the communications between teachers, students and the system.

![Communication Diagram]

*Figure 1. Illustration the communication between teachers, students and the system*

**Iterative Action Research**

We classify our approach as a type of action research. We were iteratively designing and filming dramatized video-clips and combining them with questions concerning the knowledge in the clips. After each course where we had presented online video-clips in this way we evaluated the students’ opinions about the qualities of the video-clips and to what extent they thought that the clips had supported them in their learning.

**The design Steps for Creating Dramatized Examples**

It took us two years to discover the best way to design and produce large amounts of dramatized video-clips that were appreciated by the students. This research is slightly out of the scope of this article and will not be presented here but can be found in (Kjellin & Wettergren, 2009). It will suffice to say that we found that the most efficient way was to first define the roles of the players together with the knowledge to be conveyed and the drama that would situate the knowledge. After these initial precautions it was possible to let the actors improvise. The filming was done in a studio with real-time editing facilities, i.e.
there was one camera on every actor and a technician created the movie by always selecting the camera that gave the best perspective of the drama in the presentation of knowledge. The described method allowed for a very efficient writing of sketchy outlines to be filmed and also for an effective filming of lectures as a number of real-time edited video-clips.

## The Designing of Questions

The questions had to be designed so that they could be used to determine to what extent the viewer had understood the presented knowledge in the film. The course curricula taught were on a “management level” and thus the presented knowledge was not factual. A consequence of this was that the knowledge could often not be classified as being right or wrong but rather more or less good or bad in a certain context.

We tried to design questions that could provide indications about the maturity of the viewer’s knowledge. The viewer was told that all alternative answers to a question may be right, but there was always one answer that was better, more useful, more appropriate or more relevant than the others. Initially some students had problems with this, and they claimed that they wanted questions that had answers that were either right or wrong. However, once they understood the philosophy of the questions and answers they accepted that it was not their factual knowledge that was tested but rather their judgments of a problem situation.

### An Example of a Question and an Automated Feedback

After presenting a video-clip on trust among employees the following question was presented:

How can you create trust in an organization?

1. By making sure that nobody breaks agreements
2. By making sure that the organization becomes transparent
3. By relying on human relationships instead of formalized rules

If the student clicked on alternative 1, as described above, a Java-script was shown that told the student: “Sorry but your answer was not the best answer. To implement control functions in an organization is not the most effective way to create trust. You should preferably follow this LINK to find more information about how trust is created”

## Results

In the first pilot evaluations students filled in inquiries whether they liked the online lectures teaching and if they had discovered that the automated feedback could guide them in their learning. We received positive answers to our questions. After this we carried out open interviews with students about what it was in the lectures that they specifically liked and what they did not like. This gave us information about how to design and combine film-clips with questions. Every evaluation allowed us to refine our approach. Finally we began to check how many students were able to find the best answers after the film clips in relation to how many students were able to find the right answers although they had not seen the films clips but instead they had only read parts of the course literature.

We discovered that those who had seen the film clips had better results than those who had only read the literature. We do, however, want to place a disclaimer here. We found it very hard to design a rigorous scientific testing environment to verify the usefulness of the approach. The evaluations can be criticized for being biased since the films were specifically designed to convey a certain type of knowledge. To make truly objective tests we would have to invest a similar amount of effort for guiding the students to
learn via other types of media in other types of situated teaching and then compare which of all approaches was most awarding. We assumed that such extensive work with comparisons of approaches would not be rewarding. We assumed that our research would be more rewarding if we focused on a continuous improvement of the design instead of evaluating the existing design.

**Analysis**

In general, both teacher participants and students were positive. This was expected, beforehand so it was not something new to us. Our own subjective interpretation from the experiments was that the economy behind the production of video-clips in combination with multiple-choice questions was the heaviest argument for our approach. We discovered that we could utilize limited economical resources to produce a large number of video-clips with questions.
**Conclusions**

We claim that it can be rewarding to produce large quantities of good-quality dramatized presentations of knowledge in video-clips and combine these with a function for automated feedback. We found that in all our studies the students had approved of the approach. The comparisons of results from students who did not use the films but studied the course curricula in alternative ways showed that the films were better in helping the students to understand the theories of the course.

We recommend companies and universities to try similar methods. The empirical data suggest that it is worthwhile to invest in the proposed strategy. The major argument for this is that the approach is economically feasible and also pedagogically effective.

**Future Research**

The positive results have motivated us to continue with similar research. One of the projects is presently done in Stockholm in cooperation with Ph. D students from Saudi Arabia. The aim of the project is to develop e-Learning systems for a massive knowledge transfer in companies in the mid east. The work will be based on examples of best practices of how companies in the mid east have applied new technology successfully. We assume that a database of such best practices will be of great value for the progress of the industry in the mid-east with a focus on Saudi Arabia and the United Arab Emirates. The funding of the project comes partly from Saudi Arabia and partly from Stockholm University.
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Collaborative Learning Environment – A Moodle Case Study!

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Abstract

Collaborative building of knowledge with the help of new technology could be used to enhance the learning process. This case study examines the application of the Moodle e-learning platform as a medium for collaborative learning environment. It describes some of the tools used for collaboration among mature part-time students at the University of Mauritius. The case study also highlights the different stages throughout the learning process, starting from the initiation session of the students to the tools until completion of the module. The case study ends with an evaluation of the practical implementation of this type of collaborative environment.

Keywords: e-learning, collaboration, technology, platform, learning styles

Introduction

“Education provides a flexible framework for engaging students in exploring curricular topics and developing important 21st century skills, such as communication, teamwork, and technology skills” (ThinkQuest, 2010). Technology itself is not the solution to new forms of learning. Nowadays, there is panoply of collaborative learning environments, in terms of e-learning platforms which are available for free in the open-source community. However, the main focus would be how these environments could be used to help learners in their learning process. One possible venue is the matching of students’ learning styles with the teaching style. In other words, which methodologies could be used by the teacher to conduct classes with the help of technology-enhanced techniques? This case study provides an overview of the learning environment used to create an atmosphere that promotes collaborative building of knowledge. It discusses how the learning styles of students could be matched with the tools provided by the Moodle platform and how technology could be used to achieve this type of collaborative environment.

Learning Styles

Felder & Solomon’s Index of Learning Styles (ILS) (Felder, 2010) was chosen as the instrument to determine the learning styles of students. The model was originally formulated by Dr. Felder in collaboration with Dr. Linda K. Silverman to overcome the mismatch between teaching style and learning styles of students. Felder-Solomon ILS focuses on 4 axes to assess learners:

1. Active/Reflective: Active learners tend to like group work more than reflective learners, who prefer working alone.
2. Sensing/Intuitive: Sensing learners tend to like learning facts, intuitive learners often prefer discovering possibilities and relationships.
4. Global/Sequential: Sequential learners tend to gain understanding in linear steps and Global learners tend to learn in large jumps.
Assessment is done using a 44 items questionnaire (11 per axis) with 2 choices and learners are eventually scored on each axis out of 11 (Brown & Brailsford, 2002). Each of the 44 questions of the ILS is linked to one of the four scales.

The main objective was to identify the preferences across the Active/Reflective and Sensing/Intuitive scales in order to identify activities that could help the students in the learning process and eventually create a knowledge building environment.

Before the start of the semester, a survey was administered to a sample of 15 students with varying ages, abilities, backgrounds and gender. Each one of them had to fill in an online questionnaire (Felder & Solomon, 1991) which was compiled and the results are summarised below:

The survey asked students to choose their preferences and gave them feedback concerning their own learning style, that is, in which ways do they better assimilate information. As expected, it was interesting to note that not all students have a balance of each learning style. Some of them had preferences for a particular style while others had preferences for a combination of several styles. Students who might be at ease with a particular style might have difficulties in learning in some areas.

Since learning styles are a way to help improve quality of learning, we would be able to adapt the teaching style or methods by understanding the students’ learning styles from the survey results.

The data from this small study gave us an indication about the learning styles of the university students:

- **Active/Reflective learning style** preferences tend to vary between students. Since they are neither primarily active nor reflective, pedagogical support for such students should include both active and reflective learning. This means that students should be allowed to experiment with ideas in group and given homework and activities that would allow them to reflect on a particular topic of interest.

- **Sensing/Intuitive learning style** preferences are normally distributed. Although there seems to be a large number of pupils grouped on each side, where there might be only little or no preference for one learning style or another, there are still a sizeable number in the middle. Pedagogy should stress on facts to be learned, problem solving through templates and repetition where the students are asked to practice based on these facts.

Taking into consideration the learning preferences of the students, some of the
recommendations (Young, 2008) that could be implemented to accommodate the learning styles the students were:
1. Active/Reflective: Notes and guidelines, steps, experiences, discussions, groupwork, learning by doing.
2. Sensing/Intuitive: Case studies, analogies, examples before theory, facts, proven methods, real-world connections.

The Moodle Platform
Moodle (Moodle, 2010) is a Learning Management System (LMS) or a Virtual Learning Environment (VLE). It is a free web application that educators can use to create effective online learning sites and collaborative learning environments. The platform provides a number of tools or activities: Assignment, Chat, Glossary, Lesson, Quiz, Survey, Wiki, Forum, etc. The activities that were chosen to match the learning styles of the students were as follows:
1. *Glossary:* The glossary allows participants to create and maintain a list of definitions. All students can view definitions uploaded by their friends.
2. *Journal:* The journal activity allows students to submit text, using the normal Moodle editing tools. As reflective learning and formative assessment have a greater presence in education today, the journal proves a useful way for students to record their thoughts and feelings about a particular topic or theme. Teachers can grade them online & also add inline comments or changes.
3. *Assignment:* The assignment activity module allows teachers to collect work from students, review it and provide feedback including grades. Students can submit any digital content (files), including, for example, word documents, spreadsheets, images, audio and video clips.
4. *Forum:* The Forum activity provides a common area for students to come together and discuss unlimited topics and educational ideas. After the initial posting, students can view and respond to others’ postings. This feature allows equal posting opportunity among all students, thus encouraging original and independent thinking.

Implementation
The module was delivered using blended mode: with print-based Study Guide, online course units and activities on the Moodle platform, and some face to face tutorials. The rationale for delivering this module Online/Blended was to get the students accustomed to online tools: you learn by doing. Online participation counted for the assessment (70% is being allocated for Continuous Assessment), therefore students were encouraged to be an active and proactive learner.

An induction session was scheduled to initiate the students to the Moodle platform. The session was conducted in a computer laboratory where each student was allocated a computer terminal so that they could familiarise themselves with the platform and the activities that would be set during the semester. The purpose of the session was to get them familiar with:
- Registering for an online module.
- Getting used to surf through the website of the module.
- Understanding Moodle activities: Online forum discussion, Journal, Wiki, Assignment & Online tests such as Multiple Choice questions.

A general glossary was created for the module and students had to input definitions with
respect to weekly topics. Every week, case studies were posted online and students had to reflect and post their comments on discussion forums that were created by the teacher. Assignments and Journals were also given as activities, but in this case study, we shall stick to the collaborative tools: Glossary and Forum.

**Evaluation**

An important point to be noted here is that these students were mature working students who had practically no previous exposure to this kind of learning environment. They were going to venture into a new learning environment with new tools supported by technology.

It was observed that the students liked the activities, especially the discussion forums and glossary since they were able to view entries by their friends and gave their feedback as well. As the semester started, new activities were created and students had to participate by giving their inputs. Case studies were posted on the platform and students had to reflect on them and post their comments on the discussion forums. By the end of the semester (15 weeks), the collaborative tasks given to the students resulted in the following statistics:

- **Glossary**: 247 entries
- **Forum**: 13 forums with a total 320 entries
Conclusion

The use of eLearning platform such as Moodle can be used to create a collaborative learning environment. This case study illustrates how students were given the opportunity to work on activities that match their learning styles. However, in order to cater for all the learning styles, a more detailed study must be carried out. The greater the number of participants, the more accurate will be the study. Also, each class may have different balance of learning styles. Therefore, we need to take into account module design considerations to cater for the styles for all students.

The online activities helped them to increase their knowledge by working on collaborative activities such as the Forum and the Glossary. Nevertheless, incentives had to be given to students for them to collaborate among themselves. In this case study, students were given marks for online collaboration and these marks counted as continuous assessment and eventually for their overall markings for that module.
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Remote and Open Laboratory in Science Education: Technological, Educational and Psychological Issues

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Abstract

Computer supported inquiry based learning environments are developing along the lines of integrated learning and combining multiple approaches; but till now, they have rarely included virtual and remote experimental environments to form a unified body of information and knowledge in both collaborative and constructivist way.

With progress in information technologies, the chance to handle real objects by application of remote and virtual experiments across the Internet has emerged. This paper will describe how a scientifically exact and problem-solving-oriented remote and virtual science experimental environment might help to build a new strategy for science education. The main features of the new strategy are (1) the observations and control of real world phenomena, possibly materialized in data, their processing and evaluation, (2) verification of hypotheses combined with the development of critical thinking, supported by (3) sophisticated relevant information search, classification and storing tools and (4) collaborative environment, supporting argumentative writing and teamwork, public presentations and defense of achieved results, all either in real presence, in telepresence or in combination of both. Only then real understanding of generalized science laws and their consequences can be developed.

This science learning and teaching environment (called ROL - Remote and Open Laboratory is offered to science students in both formal and informal learning, and also to science teachers within their professional development studies, since 2003.

Keywords Remote laboratories, e-learning, telepresence, science education

Introduction

Contemporary Problems in Science Teaching – the Reality

Derrick in identified contemporary problems in science education and their close connection to a general teaching and learning paradigm shift, as a result of the reality of the globalized world together with the information revolution and ongoing knowledge society needs. He has identified general features and postulated recommendations:

• Turn the focus from readymade problems and situations to uncertain ones
• Focus to conceptual understanding
• Uses a holistic, as opposed to discrete, approach
• Support team work and virtual teams around the world
• Blur the difference between mental and physical labour

The general teaching and learning paradigm shift mentioned above is not yet reflected in contemporary teaching methods at many traditional teaching and learning environments.
Over the past couple of decades, science education researchers have studied the effectiveness of existing teaching and learning practices: conceptual understanding, transfer of information and ideas, beliefs about science and problem solving in science. The definitive conclusion is that no matter what the quality of the teacher is, typical students in a traditionally taught course are learning mechanically, memorizing facts and recipes for problem solving, but not gaining a true understanding. In spite of the best efforts of teachers, students often consider science boring and irrelevant to the world around them.

**The Role of Labs and the Cognition of Real Phenomena in Science**

The role of labs in sciences is well described in the very instructive and still valid document of the American Association of Physics Teachers, formulating five goals that the physics laboratory should achieve, briefly described as following:

- The Art of Experimentation
- Experimental and Analytical Skills
- Conceptual Learning
- Understanding the Basis of Knowledge in Physics
- Developing Collaborative Learning Skills

**Contemporary labs: E-labs**

**General Issues**

At the present time, information and communication technologies have invaded science education in all directions. They have undoubtedly changed the laboratory “landscape”.

The nature and practices of laboratories have been changed dramatically by the new technology-intensive automations:

- Virtual labs (also called simulated labs),
- Remote labs, and
- Computer mediated hands-on labs as an alternative for conventional hands-on labs.

The present state of art is characterised as reaching the level of the quantitative increase of parameters that can bring about very deep qualitative changes. In the very recent issue of European Journal of Physics, devoted to Student undergraduate laboratory and project work, Schumacher [11] brings the examples of the invasion of computers in contemporary laboratory work reaching from project labs, modelling tools, interactive screen experiments, remotely controlled labs, etc. It is plausible to adopt the statement that these kinds of e-labs will be the typical learning environment for physics students in the future.

**Educational Issues of e-Labs**

Although the researchers still discuss each type of e-labs from different perspectives, the relative effectiveness of the new laboratories compared to traditional hands-on (“recipe based”) labs seems to be undoubted.

The following aspects are often discussed:

- Design skills
- Conceptual understanding
- Social skills (including team work and networking)
- Professional skills

Although there is a lack of criteria for judging and the evaluation of the effectiveness of the three new types of labs: computer mediated hands-on, virtual and remote labs, the results of the comparative literature study (Ma, Nickerson, [6]), including more than 60 research studies, are very instructive.
Economic issues

As a backdrop for these phenomenological issues (more details in Ma, Nickerson, [6]), there is a set of economic issues. Traditional hands-on labs put a high demand on space, instructor time, expensive apparatus and experimental infrastructure, often in a number of identical lab stations, which can be little used for other purposes. All of these aspects are subject to rising costs. Remote and virtual laboratories may provide a way to share specialized skills and resources (also with research institutions) and thus to reduce overall costs and enrich the learning experience.

Psychological Issues and the Problem of “Presence”

Sheridan identified three types of presence: physical presence, telepresence, and virtual presence. Physical presence is associated with real labs and understood as “physically being there.” Telepresence is “feeling like you are actually there at the remote site of operation,” and virtual presence is “feeling like you are present in the environment generated by the computer”. The author argued that by suspending disbelief, we can experience presence in a virtual environment. Noel and Hunter claimed that the critical issue in designing virtual environments is to create a psychologically real setting rather than to recreate the entire physical reality. In our strategy we offer students the combination of all three kinds of presence identified by Sheridan.

New e-Learning Strategy in Science Education

The motivation and inspiration for this new e-learning strategy in science education came
from our own research work on remote and open laboratories (ROL project) (Lustigova, Zelenda), introducing the very early stage of virtual presence through a remote labs potential for blended learning in Science, then from the recent paper of Wieman and Wieman, Perkins, supporting and calling for the change in the educational technology, seeing the remedy at hand in the existence of simulations, and also from Thomsen and his co-workers, who present the new approach called e-LTR (eLearning, eTeaching, eResearch) using the remote experiments (RLC). They also introduce eResearch, based on the existing e-laboratories, composed of the remote internet-mediated experiments, enabled to fill link (missing till recently) to e-Learning.

This new e-learning strategy in science education is actually copied from the method that sciences use in their cognitive work. It is based on the observations of phenomena in the real world, together with the processing and interpretation of ensuing data and their presentation, and the effective search for relevant information and effective ways of classification and storing. Teachers are not bound by strict rules of the teaching unit; some unveiled problems are proposed to students for their own independent and project work.

The learning process itself is based on the active participation of students, whose involvement is strengthened by dynamical simulations of the real phenomena, co-operative teamwork (both real and virtual), public presentations and the defense of achieved results, all either in real presence or in telepresence.

**ROL Components and First Experience**

**Remote Observation and Data Collection**

This set of modules teaches basic concepts in remote sensing. Learners are shown how characteristics of the system and sensors are used, and how they affect the amount and quality of data collected. A sampling of ways to use the data for activities such as weather forecasting and scientific research are demonstrated. At the completion of each module, learners are given opportunities to apply what they have learned to actual data collected by MFF researchers.

Learners are starting from the simplest observations (weather observations - temperature, air pressure, wind speed and direction, sunshine, etc., see Fig.3) and continue to more and more sophisticated data acquisition and research design.

**Hands-on Remote Labs and Process Control**

The oldest, most popular and the most fun part of this blended learning environment is the “hands on” remote laboratory, which allows learners to operate equipment such as simple robots, mechatronic systems, programmable logic controllers and wet process control systems over the Internet. It includes detailed expert instruction, video and audio feedback and evaluation. Each component takes students through a complete, progressive learning system that first teaches through simulation, and then allows interaction through real-time remote lab operation.

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*(Figure 3. Remote process controlling)*
**E- Simulations (virtual labs)**

Virtual lab tools offer a large variety of e-simulations and models, including Java applets, Flash visualization and/or different kinds of computer mediated mathematical models. Applets were primarily developed to visualize the phenomena and help to understanding in a graphic way. They are not primarily focused on data providing, although some of the applet creators enable the drawing out of the full data set. That is why the vast majority of virtual laboratories, spread all over the “web world”, do not provide the data output or input we need in science for the comparison of real experiments and models. The new and the most far-sighted branch of applets or models, offered by the Remote and Open Lab, is connected to the real experimental setup (even physically) and thus enables the import of real measured data as well as their simulation.

**E-Simulation in Connection to Real Data Acquisition and Process Controlling**

This sophisticated and complex approach enables students to observe specific and rare phenomena (earthquakes for example) without losing the sense of being in a place, to manipulate remotely dangerous objects and chemicals in a very safe way, and to accomplish complicated measurement and data acquisition on a high level without being lost in technical problems and setups; and thus to focus on conceptual understanding through different methodological approaches (e.g., social constructivism - virtual team discussion and co-operation tools, consultancy services, or individual inquiry – e.g. real data and mathematical simulation results comparison).

As an example of what is mentioned above, we propose the diffraction on microbject experiments (http://www.ises.info/index.php/en/laboratory/experiment/difraction-on-microobjects) or Heisenberg uncertainty principle experiment (http://www.ises.info/index.php/en/laboratory/experiment/heisenberg-uncertainty-principle), which experimental setups enable telepresence through computer mediated mechanical manipulation with real objects (e.g. laser, aperture), computer-mediated set up of the experiment (frequency of the light, parameters of the aperture) and through visual observation of the observed phenomena (web camera). It also enables computer aided data acquisition (pure data and visualized data – graph), together with the possibility for immediate comparison of the real data and simulated results.

*Figure 4. Real remote data collection and process controlling in connection with e-simulation and modelling*
Conclusions

Although the whole problem of the cognition of the real world via remote tools has many philosophical and methodological aspects, and the effective use of blended learning environments based on it definitely needs further research, in the following we would like to publish selected conclusions, based on a comparative literature review (11 papers, results obtained from different schools of physics and faculties, preparing physics teachers - e.g. Schauer, Kuritka, Lustig, [8], Schauer, Lustig, Ozvoldova [9], etc.). Most of the reviewed papers’ authors adopt e-labs within the two-semester course of an introductory physics laboratory, oriented mainly toward mechanical and thermal properties, electric and non-electric properties, oscillations, waves and optics, and microphysical phenomena. The data collection was computerized, mostly by ISES, some experiments (app. one half) were designed to use different tools and methods of proposed ROL environment, including virtual consultancy services and e-sheets for the virtual team work. The comparative study was not published, yet.
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Transmitting and Sharing Know-How through Sign Management: An Application to Semiotic Annotation of Music Pieces

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Abstract

To deliver a better education service, some teachers would like to explain their interpretations of teaching material to learners. With ICT, new e-services can be imagined to enhance their know-how for and with students. In the frame of instrumental e-learning, we have been building a semi-automatic annotation module called @-Muse for music teachers and learners to annotate musical scores with multimedia content. This tool is based on sign management and semiosis, i.e. a co-design process with end-users for making pedagogical e-services on a creativity platform. The aim of this semiotic annotation module is to transmit and share the different sign components of the piece: data (live performances), information (working methods and notation symbols) and knowledge (score meaning based on expertise).

Keywords: Sign management, Know-how, Musical score, E-learning, Semiosis, Multimedia, Semiotic annotation.

Introduction

While more and more e-learning Web applications upraise to facilitate the creation of academic on-line lessons (Moodle, Blackboard), this trend is yet to happen in the field of know-how. In the case of knowledge transmission for e-learning, most of the existing applications consist in a traditional, static list of lesson units, illustrated by multimedia contents, from the viewpoint of a single expert. The case of know-how is subtler to deal with, firstly because the transmission of genuine gestures and sensibility must be considered in addition to traditional written supports, but also because it can be prone to various interpretations that are worth to share. For instance, in music learning, a single score can lead to a large range of different, yet interesting performances of the piece. Thus, the existing applications in the field of musical e-learning are characterized by a high usage of multimedia contents to try to vehicle these elements, as well as a real face-to-face lesson. Hence, the realization of a whole lesson on these platforms requires heavy installations and treatments (multi-angle video recording, 3D motion capture), as well as the intervention of multiple actors other than the teacher himself. That is why we propose in this article a method and a platform model to allow musicians to constitute and discuss music lessons by themselves, in a simple and transparent way. To do so, the machine acts as an assistant to the user, by guiding him through the lesson creation process thanks to descriptive logics based on musical analyses of scores, a traditional practice in music, digitally augmented with annotations.

In this paper, we first introduce a new paradigm to design meaningful know-how transmission and sharing applications: Sign Management. The shift from knowledge
management is explained mostly by the choice of our application domain: music education that needs both transmission and sharing of interpretations. We then propose an acquisition method of musical objects to apply this paradigm in the case of instrumental e-learning. Based on this method, we further present a collaborative platform in order to facilitate musical knowledge preservation and sharing through semi-automatic score annotation: @-MUSE.

The New Paradigm of Sign Management

In the context of enhancing Knowledge with Information and Communication Technologies (ICT), Sign Management emphasizes the engineering and use of data, information and knowledge from the viewpoint of a Subject (an individual). Our paradigm is derived from the pragmatic Peirce’s theory of semiotics with a Sign’s correspondence of the Subject to its Object. From this philosophical viewpoint, a Sign, or representamen, is something that stands to somebody for something in some respect or capacity. From our computer science analysis, Data (Object) is the content of the Sign (something), Information, a multi-layered concept with Latin roots (‘informatio’ = to give a form) is its form, and Knowledge is its sense or meaning, i.e. no-thing. In fact, Knowledge cannot be managed because it is tacit and resides between the ears of each individual (somebody). Knowledge is subjective in the paradigm of Sign management: it cannot be taken for granted without putting it into use, mediated and negotiated with other Subjects on a meeting place. What can be managed is called descriptive or declarative knowledge: it is the communication of justified true beliefs propositions from one subject made explicit. The formal interpretation process from observation to hypotheses, conjectures and rules is called signification of knowledge on the human communication side of the Sign. It is called representation or codification of knowledge on the machine information side of the Sign. Apart from being described, this interpretation process can be shown to illustrate the description (“draw me a sheep”, says the little prince!). Sign management wants to enhance also this aspect of multimedia illustration of interpretations to facilitate transmission and sharing of knowledge through the communication of the subject (see the fourth communication part of the sign in Figure 1).

In knowledge management, propositional knowledge is taken mostly in the sense of scientific knowledge, considered as objective in scientific books, and providing the know-that or know-what. Ryle in has shown that this is confusing. In the sense of subjective knowledge taken as “I know that or I know what”, there is the other sort of knowledge called know-how. It is “the knowledge of how to do things”, i.e. what the subjects can show through their interpretations when they practice their activity (there is a difference between the recipe and the cooking of the recipe, isn’t it?). And some people do the activity better than others. They are called the experts. As such, know-how is closer to data (Praxis) and information (Techné) than to knowledge (Scientia). Finally, know-how and know-that or know-what are different categories of knowledge and should not be conflated. Knowledge synthesizes what makes sense in the head of skilled persons for doing well the tasks of their activity.

Starting from these differences of interpretations about the term of knowledge, and considering the domain of activity that we want to deal with, i.e. music education, we prefer to focus on managing interpretations, and firstly the good ones from professors. Sign management manages live knowledge, i.e. subjective objects found in interpretations of real subjects on the scene (live performances) rather than objective entities.
found in publications (bookish knowledge). Finally, a Sign is a semiotic and dynamic Object issued from a Subject and composed of four parts, Data, Information, Knowledge and Communication. Our Sign paradigm uses a tetrahedral representation (a regular tetrahedron) instead of the triadic signs representation (see Figure 1). All these subjective components communicate together to build a chain of significations and representations that we want to capture.

Sign management makes explicit the subjective view of doing arts and sciences. Our aim is to compare different interpretations of subjects about objects through transmitting and sharing them on a physical and virtual space dedicated to a special type of e-service, i.e. instrumental e-learning. For the purpose of co-designing such a service with ICT, a Creativity Platform is the co-working, learning and communication space for researchers and developers, businesses and users, aimed at collectively defining the characteristics of e-services in order to ensure the most direct correspondence between expectations and use.

**Sign Management for Music Education**

Sign management is thus more central than Knowledge management for our purpose in instrumental music learning. Indeed, the musical signs to treat are made of emotional content (performances), technical symbols (scores) and tacit knowledge (rational and cultural know-how) (see Figure 1). The sign management process that we created is developed on a Creativity Platform for delivering an instrumental e-learning service, and follows the user-centered political innovation process of Living Labs. On technical aspects, it is founded on an imitation and explanation process for understanding gestures that produce the right and beautiful sound. The advantage for learners is that we are able to decompose the teacher’s movement and understand the instructions that are behind the process of playing a piece of music. To further progress, the learner has to master a lot of technical and motivated details. That is why we imagined a new way to deliver this information: showing examples from various experts through multimedia annotations indexed on a score.

Indeed, annotation is a practice commonly used in music learning. It consists in adding written symbols and short texts to a score to help the student to remember how to work the piece, once he is alone playing with his instrument. An annotation is a chunk of interpretation made by a Subject on some Objects of a piece of music. As such, it can encapsulate the different components of a sign. The Subject is identified by the annotation’s name of author, Data by the different multimedia resources contained within the annotation, Information by the formal representation of the piece (notation), and lastly, Knowledge by the meaning of the annotation (what it is about), from the Subject’s viewpoint (explanation), but also from the machine’s one (semantic annotation thanks to a dedicated ontology). Figure 1 shows how these elements are linked to allow the collection and sharing of Musical Signs.
Annotations created by users are collected through an Iterative Sign Base System (ISBS) and then reused to dynamically create new knowledge on the @-MUSE platform. ISBS extends IKBS on annotations thanks to an ontology acquisition method made of simple description rules in musicology.

**Acquisition Method of Objects by Subjects**

Knowledge management is a paradigm we applied in different domains of decision help based on subjects’ interpretations. For example in Biology, we designed a tool called IKBS [3] based on a knowledge acquisition method and an observing guide for describing well biological objects, i.e. the descriptive logics in life Sciences [9]. The objective is to classify and identify a specimen correctly from an expert viewpoint. We applied the same approach in medicine and pathology for facilitating the correct photo interpretation of symptoms for diagnosing a disease. In instrumental e-learning, the problem is slightly different: we can also manage the knowledge of musicologists to analyze a piece of music, in order to facilitate the interaction with learners. But the problem is not to recognize the right name of a piece of music; it is to play this piece as well as famous interpreters or the professors. This objective is also more complex than in life sciences because of the multiple perceptions that are involved to produce correct interpretations, i.e. hearing the sound, observing the fingering, feeling the gesture, touching of the instrument. This is why we need a more advanced concept than knowledge acquisition, i.e. a sign acquisition method.

The acquisition method of musical objects is based on the same descriptive logics than in natural sciences, i.e. decomposition of the score into parts, melodic phrases, then definition of musical objects that are a
combination of notes, chords, and silences. Each object is defined by attributes such as right hand and left hand fingerings, etc. The sign acquisition method is augmented with multimedia annotations to show the objects. Indeed, our sign management paradigm adhere to the pragmatic approach of C.S. Peirce for which it is necessary to deliver a content object to what is discussed or written. Without this reference, the comparison of interpretations is not possible for the learner who wants to play a piece of music beautifully. This shown data object (see the gesture that produces the right sound) is part of the signification process or semiosis (Figure 2). This sign management process takes the different components of the Sign in a certain order to make a decision: first comes the subject who is receptive to his milieu or “umwelt” [18], and who cares about information to act in a certain direction (volition), then comes the data (object) to position himself in space and time (action), then knowledge is activated in his memory to compare the actual situation with his past experiences and make an hypothesis for taking a decision (cognition). The signification (building of the sign) communicates the process iteratively in a reflexive way (memorize new knowledge) or communicates the result (interpretation) as information to his environment (exteriorization).

Semiosis is similar to the working principle of inference engine that was modeled in expert systems: the evaluation-execution cycle. The difference is that signification integrates the subject in the process, and this integration is therefore more meaningful to humans than to machines. The subject operates the signs in two phases: reflection and action. These phases are linked in a reflexive cycle with a semiotic spiral shape including six moments: 1) to desire, 2) to do, 3) to know, 4) to interpret, 5) to know-how for oneself, 6) to

Figure 2: the signification process for sign management
communicate to others (Figure 2). The semiosis spiral is included in the tetrahedron of the sign. This psychological process is the heart of the acquisition method on our Creativity Platform that we want to develop in Reunion Island as a Living Lab for making e-services with end-users.

**Learning Music through Multimedia Annotations: @-MUSE**

[@-MUSE](#) is a web platform model enabling Annotation for MUSical Education. We built it based on the new Sign education paradigm presented earlier, in order to dynamically create music lessons that correspond to learners’ needs. The idea is that the lessons can either be constituted entirely by a teacher (first use case), using descriptive logics (Figure 3), or through collaborative works (second use case), using a Musical Message Board (MMB).

The first use case results in well-constructed, complete lessons, and requires some investment from an expert, who is a skilled professor and performer. This interpreter is guided through the process thanks to an adapted interface presenting the different steps constituting the piece descriptive logics in a transparent way. The descriptive logics are based on how new pieces are explicated to learners during a real music lesson, thus recreating a favorable environment for music knowledge transmission, as a top-down approach. Firstly, the general context of the piece is described (title, composer, style, period, etc.). Then its structure is underlined: expressive phrases are linked to the logical structure of the score in MusicXML (an XML open source score format [2]). This will allow upcoming annotations created on the piece to be automatically linked to the defined parts of the piece (i.e. introduction, theme, refrain, coda, etc.). The advantage of using these structural elements rather than the measures notation is that they are independent from the considered scores, and thus can be a work base for users who cannot read scores. Globally, it is the same work as identifying the different parts of a text, instead of
separating it word by word. In addition, this system also prepares the ground for future annotations, which will be linked to these parts and to the annotations created by the teacher, and eventually, give birth to fruitful discussions about the piece.

The second use case results in the discussion of punctual difficulties within a piece, and emerges from the practice and exchanges within the community of professors and learners (bottom-up approach). This dynamic constitution of a new lesson is possible thanks to the semantic architecture of the platform presented in Figure 4. With this architecture, a piece can exist independently from its related resources (performance, score, textual description). The interfaces are generated according to the amount of information available for the piece. To do so, semantic links must be created between the resources, in RDF (Resource Description Framework), based on specific ontologies. While ontologies already exist to describe general music information, it was not the case for specific performances point, i.e. for training with technical difficulties. We thus proposed a Musical Performance Ontology in, which is used by @-MUSE to describe musical content from a sharing point of view. As such a new piece can exist within our system without the intervention of a teacher or a technician, but based only on a learner’s motivation to play the given piece.

![Figure 4: @-MUSE architecture](image-url)
But as a learner created the piece entity, educational information does not exist yet for this piece, as no music expert filled it on the contrary to the first use case. That is why we developed simple inference methods to automatically create basic technical information on a new piece. Although this method requires a logical description of the piece (in MusicXML), it allows the learner to dispose of basic tips to start working on the piece, especially to resolve technically difficult points (arpeggio, scales, etc.), before working on musical expression (peculiar to human) with a teacher. The process first begins by analyzing the global difficulty of the given piece (beginner, intermediate, advanced or virtuoso). But as difficulty is inherent to the given instrument, we chose to work specifically on the piano. Indeed, as we have been playing this instrument for years, we chose it as an experimental domain so that we can test the system on actual cases. We thus created seven criteria to determine the level of difficulty of a piano piece (Table 1). Some of these criteria may be reused for different instruments (speed and polyphony). For each criterion, a cost function is created to simulate the ease of play on a given subpart of the piece. These functions are directly issued from real instrument practice, in the same way as with automatic fingering determination, but still need more refinement and test to enhance the accuracy of the evaluation. This will be detailed in an upcoming paper.

<table>
<thead>
<tr>
<th>Performance difficulty criterion</th>
<th>Musico logical definitions</th>
<th>MusicXML implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing speed</td>
<td>Tempo: speed or pace of a musical piece. May be indicated by a word (e.g. allegro) or by a value in BPM (Beats Per Minute)</td>
<td>&lt;note&gt;attribute elements in &lt;sequence&gt; element</td>
</tr>
<tr>
<td>Pulssion: reference value indicated in the tempo : $\delta = 1, \frac{\pi}{2} = 2$, $6 = 1, \frac{\pi}{2} = 16$. etc.</td>
<td>Tempo attribute in &lt;sound&gt; element</td>
<td></td>
</tr>
<tr>
<td>Fingering</td>
<td>Fingering: choice of finger and hand position on various instruments.</td>
<td>&lt;measure&gt; and &lt;note&gt; elements</td>
</tr>
<tr>
<td>Polyphony</td>
<td>Chord: aggregate of musical pitches sounded simultaneously.</td>
<td>&lt;chord&gt; element</td>
</tr>
<tr>
<td>Harmony</td>
<td>Tonality: system of music in which specific hierarchical pitch relationships are based on a key &quot;center&quot;, or tonic.</td>
<td>&lt;alter&gt; and &lt;accidental&gt; elements</td>
</tr>
<tr>
<td>Irregular Rhythm</td>
<td>Polyrhythm: simultaneous sounding of two or more independent rhythms.</td>
<td>&lt;time-modification&gt; element</td>
</tr>
<tr>
<td>Length</td>
<td>The length of the piece in beats. The number of pages cannot really reflect the length of a piece because of page setting parameters</td>
<td>&lt;beat&gt; element of &lt;time&gt; element and &lt;measure&gt; elements</td>
</tr>
</tbody>
</table>

An analysis is then launched on each measure of the piece to determine the location of difficult spots and the cause of the difficulty (Figure 5). Each difficulty criteria is linked to specific concepts of the Performance Ontology, allowing the system to research all the annotations that may be relevant regarding the considered difficult point within the piece, and thus provide appropriate tips on a new piece. If the returned annotation’s content is editable (MusicXML, MIDI), it can be adapted to fit to the context of the new piece (tonality, speed, etc.)
Figure 5: Automatic difficulty analysis and suggestions on a digital piano score
Conclusion

The prototype based on this proposal is now almost ready. The forthcoming step will be to confront it to learners and teachers who will create content based upon real activity. In order to achieve this, we are to work with the Conservatoire à Rayonnement Régional, the local pedagogical reference as far as musical learning is concerned.

Using the system will require some special investments regarding user interface: indeed, using a computer with mouse and keyboard is not possible with an instrument like the piano. Thus, we are to use connected tablets like the Apple iPad, which can be handled as a scorebook in the music test. Activity remains natural and users can concentrate on the learning and not the system management. Transmission and sharing of know-how needs to combine both approaches in a semiotic way in order to guide both professors and learners to fruitful annotated interpretations.
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Processing and Analysing Assessment Test Logs Provided by Digital Pen and Paper

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Abstract

In an educational context, the use of new technologies can influence and change teaching practices.

Digital pen and paper, as man-machine interface, appears familiar and do not require any specific training. Analyzing logs recorded by this technology, especially time, seems interesting in order to provide new indicators for evaluation or observation.

As far as we know, time stamped logs recorded by digital pen is barely studied in an educational context by researchers. We explore the use of digital pen and paper solution for paper assessment tests. Especially, we investigate the interest of time stamped answers, considered as traces of the answering process to an assessment test.

As the raw data collected with the digital pen and paper have to be transformed to compute indicators, we have designed and developed a platform named Segell. It provides graphical representations, which helps users, as teachers or researchers in education, to analyze students’ production.

The paper presents an experiment where we used digital pen and paper for the administration of assessment tests. We detail the analysis of collected data we conducted with the support of our platform. The paper enlightens the type of information we get on students’ behavior during the test.

Keywords: Digital pen and paper, time stamped logs, traces analysis, assessment test, education

Introduction

A digital pen looks and works like an ordinary ballpoint, but it captures handwriting from digital paper forms. In the “Anoto” technology, the digital pen works together with normal paper overprinted with a barely visible pattern of dots. The pen has a tiny camera. When touching the paper, it reads and records strokes in relation to the digital paper’s dot pattern. Collected information contains the precise location of each pen stroke from an X,Y coordinates and the date and time of each stroke.

As man-machine interface, the digital pen appears familiar and do not require any specific training. The analysis of the logs recorded by the pen, especially time, seems interesting in order to provide new indicators for evaluation or observation. As far as we know, time stamped logs recorded by digital pen is barely studied in an educational context by researchers.

As we are particularly interested in assessment tests, we decided to explore the use of digital pen and paper solution for assessment tests. Especially, we investigate the interest of time stamped answers, considered as traces of the answering process to an assessment test.

As the raw data collected with the digital pen and paper have to be transformed to compute
indicators, we have designed and developed a platform named Segell. It helps users, like teachers or researchers in education, analyzing students’ production. It has 3 main functionalities: reprocessing of data collected by the digital pen, management of data and indicators, interactive graphical representations of indicators.

Section 1 presents an overview of research works concerned with the use of digital pen and paper in educational contexts. Section 2 exposes our research goal and our approach concerning the exploitation of assessment paper test logs. Section 3 describes the main indicators and graphical representations developed for our method and computed by our tool Segell. Section 4 presents an experiment in which students used digital pen and paper during assessment tests, in a spreadsheet course at the University. We expose our analysis and the results we get. Finally, we conclude and give the perspectives for this work.

**Digital Pen in Education Context: What Research Says?**

For few years, digital pen and paper Anoto technology was used in a variety of domains (See Anoto web site). As far as we know, the use of this technology in educational researches is still rare but should become an emerging area. Heidy, Brian and Scott (2006) have used the digital pen as part of a collaborative work for the exchange of ideas on paper expressed spontaneously during a course of computer design. They show that this hybrid technology is as flexible as notebooks or paper to communicate ideas. According to them, it provides the necessary fluidity for a collaborative work in project design.

In an early elementary class, Sugihara et al. (2010) use Anoto technology in order to facilitate the feedback on students’ production to teacher. Students’ writings are exposed on a screen. The teacher can correct and comment the work for everyone in the class. This study concludes that pupils are motivated and enjoy using this system in general.

In mathematics education, Oviatt, Arthur and Cohen (2006) compare the use of this technology in problem solving by college students with other technologies (computer with keyboard, graphics tablet with pen). Authors use times recorded with the digital pen to calculate the total time for solving a problem. Their results show that students using the digital pen are taking less time to solve problems than those who use keyboard or graphics tablet.

These research works are interesting studies of new practices in the classroom. We found no research work that exploit time stamped logs to study precisely students’ behavior using a digital pen and paper. However, in human learning environment topic, processing interaction traces are useful to analyze users' behaviors in order to ameliorate the learning process (Dimitracopoulou, 2008).

**Use Digital Pen and Paper in Assessment Tests: What for?**

A research area, developed at the STEF laboratory, concerns the assessment of students’ ICT competencies and skills. Notably, we conducted the DidaTab research project (2005-2008) to get a deeper understanding of spreadsheet knowledge and skills of secondary school students (Bruillard et al., 2008). The method we have adopted was based on the analysis of students’ response and productions in cases where they were asked to perform specific tasks involving spreadsheet use. We collected not only the final spreadsheets produced by respondents, but also the video records of all onscreen events during a test. These videos provide useful data on the processes students use to perform tasks, which enriched the evaluation of their production (Tort et al., 2009).
Thus, beyond our findings concerning the French students’ spreadsheet knowledge and skills, one of our main findings concerns a methodological issue. That is: assessment of ICT skills may be improved by taking into account the process by which students answer to a test.

In the same research project, we built and administered paper tests. Paper tests are more suitable for large-scale administration, than computer-based tests. Moreover, paper tests are a mean to focus on students’ knowledge rather than on how-to-do skills. But the question is how to explore the processes on paper tests?

Digital pen and paper offer a technical solution to capture paper test logs. We want to investigate the interest of time stamped responses, as traces of the answering process to assessment tests. A general question is: what do we learn about the answering process to assessment test? In particular, do we get additional information on students’ knowledge and skills under assessment?

From Time Stamped Strokes to Indicators and Graphical Representations

With the Anoto solution, paper tests are fill-in forms. The pen records each stroke with the coordinates of the field where it has been done and with time indication. This raw data have to be transformed to get interesting indicators. While experimenting the use of digital pen and paper on assessment test, we developed an approach inspired by a Trace-Based System concept, described in (Settouti et al., 2009). It is used in processing trace from a user’s interaction and navigation through a specific system. Processing data takes place in four major steps: (1) selection and data collection (2) data processing (transforming, indexing data), (3) the application of this treatment to produce appropriate indicators and (4) generating legible and visible representation of these indicators.

We developed a methodology and a tool to support it. It is a platform, named Segell. It has three main functionalities, related to our methodology:

1. Reprocessing of data to calculate time indicators.
2. Interactive edition and customization of data.
3. Interactive selection and parameterization of graphical representations.

Time Indicators

Time indicators are the basic automatically calculated by Segell. By the mean of the digital pen and paper, we get a couple of first moment of writing and last moment of writing in every field of test forms. With this data, we can compute durations of the answers to questions: time spent to write the answers, but also time spent between writings on two different questions. In order to exploit duration between writings, we used the notion of "latency"

Research works have shown the importance of a response time factor called "latency". Bassili and Fletcher (1991) studied this factor in the analysis of survey questionnaires by telephone. They wanted to understand the behaviors and attitudes of the respondents. More recently, Grant et al. (2000) have coupled telephone surveys in a computerized technique for collecting time. The analysis of latency was used to test the effectiveness and the formulation of questions (Bassili and Scott, 1996). It has been exploited as an indicator of errors (Draisma and Dijkstra, 2004). Finally, Callegaro et al. (2006) made the analysis of a web survey conducted among job applicants on the one hand and employees on the other hand. They used the measure of latency as an indicator of respondents’ motivation. The latency is considered an important indicator for
assessing the effectiveness and difficulty of the questions, but also the accuracy of responses, attitude and motivation of the respondents.

Works in cognitive psychology, focusing mainly on the writing task, also studied the duration of breaks. Foulin (1995) showed that the durations of pauses were indicators of cognitive processing. These durations are indicative of a rich cognitive task: research knowledge, syntactic structure and grammar of the sentence, sentence design (Olive et al., 2007).

In the case of a questionnaire on the web or on paper, where the respondent must write the answer by him/herself, measuring the latency starts from the moment of reading the question. The cognitive process of answering includes the formulation of syntactic and logical answer. In that case, the pause before writing an answer is part of the total duration of treatment to solve the question.

In our study, we get a couple of first moment of writing and last moment of writing in every field of the forms. With these times we can compute following indicators:

- The duration of writing in one field
- The length of pause between writings in two different fields
- The total duration spent in one field (the pause before plus the duration of writing).
- The order of the writings in the different fields.

**Customization of Data**

Segell offers the possibility to define additional indicators. For instance, it is possible to add marks to each answer. It is also possible to add classifications over the fields, by defining possible values and attributing a value to each field. For instance, it is possible to classify fields according to the “types of question”, with values like “multiple choice”, “several answer multiple choice”, “short answer”. Another instance could be a classification according to the related lessons in the course, or a classification related to a level of difficulty of the questions.

The aim of this functionality is to cross time indicators with these additional indicators or parameters.

**Interactive Graphical Representations**

Segell offers an interactive interface that emphasizes interesting relations between indicators. This interface allows navigating through different representations and choosing indicators to be represented. All representations display time indicators, and may be customized with additional indicators or parameters.

According to Mitchell (2004), graphical representation of time depends on cognitive representations of time and on native writing and reading directions. Segell proposes charts based on left-to-right direction and horizontal time-line, like French reading sentence, to represent time-related data. The timescale does not exceed seconds and minutes. Indeed, we are studying cognitive processes that have very short duration.

We distinguish graphical representation by population of respondents and those by individuals.

Scatter plot charts display the dispersion in time of first or last strokes of respondents to each field (see figure 1). Fields are on the ordinate axis and time is on the abscise axis. The dots in the same colour and shape correspond to the strokes of one respondent. The form of the dot dispersion gives the trend of the answering process of a population of respondents.
Figure 1: Time dispersion of first strokes in fields (‘questions’) for 9 respondents

Histogram charts display the average of time spent in fields by all respondents (see figure 2). Three indicators can be displayed: the average latency, the average writing time, or the average total time (latency plus writing).

The chart may be customized with user’s parameters, by changing the colours of the rectangles.

Figure 2: Average total time on each field (questions). The colour of the rectangles is related to a users’ customization, here the level of difficulty of questions: white for easy questions, light grey for medium questions, and dark grey for difficult question.

Stacked percentage charts display the percentage of time spent on each field by each respondent among the total time spent on the test (see figure 3). It gives more precise information relative to the time spent on field than the previous chart.
SEGELL computes also line charts that display the answering process of one respondent. We call them ‘chronological progressions’ (see figure 4). Fields are on the ordinate axis and time is on the abscise axis. The drawn line shows the order in which the respondent filled in the fields, and the time he/she spent on each fields. Coloured dots are added to display marks. Background colours may be customized by user’s parameters.

The interface that displays the charts is interactive. In most of the time-related graphs, the user can choose if already defined, parameters that will be illustrated by the colour of bars or of the background lines.

Experiment and Results

Tests and Collected Data

Our experiment took place in a one-semester Bachelor of Science degree course on spreadsheet for management. During this course, we administered 3 paper tests, each spaced by 3 lessons on spreadsheets, to 37 students (35 for test n°2). 9 students, out of
the 37, used digital pen and paper during tests.
Each test is composed of the description of a problem with a given screen capture of a spreadsheet, and ten questions. Questions ask students what should be done to reach a given target, or what would happen if some actions were performed. Questions cover all spreadsheet functionalities taught during lessons: cells and sheets editing and formatting, formula writing, chart editing, data table editing and sorting.
There are multiple-choice questions and short-answer questions (see figure 5). Multiple-choice questions accept single answer, except one question. Most of the short-answer questions ask the student to write a formula. In a test, questions are numbered 1 to 10, but they are not ordered according to a given criterion (like spreadsheets functionalities, levels of difficulty, or types of question). Tests are time-constrained according to their levels of difficulty estimated by the teacher: 10 minutes for test n°1; 20 minutes for test n°2 and 15 minutes for test n°3.
We designed the fill-in forms for the tests and instrumented it, by drawing the field and adding the dot pattern. We draw one field for each question, and declare the type of field: multiple choice, or short answer. We used Segell to get time indicators, add custom data and edit graphical representations. All screen captures given below are taken from SEGELL.

![Figure 5: Test n.1, questions 4 to 6 (English translation)](image)

**Results**

We first present the success rate of the 37 students to the 3 tests, and the difficulties they encountered. Note that the marking scheme – one mark for every correct answer—encouraged students to answer all questions, and that’s what they did.

Table 1 shows success rate to the 3 tests. In order to get an indicator of students’ success rates for each question, we classified questions in 3 categories: “easy” (more than 2/3 of students give a good answer), “medium” (between 1/3 and 2/3) and “difficult” (less than 1/3).
As expected by the teacher, the test n°1 was easier than the 2 others, and the test n°2 was the most difficult.

Do time stamped logs give more information on students’ performance?

**About the Order of Answering the Questions**

Digital pens store the time of the first stroke and the last stroke in each field. The scatter plot chart on figure 6 displays, for the test n°2, the first strokes of each student to the 10 questions. For instance, the student ROBE began to answer to the question 1 after 11:30, after having answered to question 8.

The dots scattered along the diagonal line show that, globally, students answer to questions in the order in which the questions are proposed (question 1 first, question 2 second, etc.). Similar diagonals appear on the scatter plot charts of the two other tests.

The dots below the diagonal correspond to answers that are postponed. It is likely that the student reads the question, but he/she answers to the question later on, after answering to other questions. For instance, the figure 6 shows that several students have postponed the answers to questions 1, 3, 6 and 9.

The scatter plot graphs of the two other tests show less postponed answers (see test n°1 on figure 1). The test n°2 is more difficult than the others. A hypothesis is that the more the test is difficult, the more students change the order of their answers and postpone questions. Moreover, considering the three tests, it appears that the most postponed questions are “difficult” or “medium” questions. On the contrary “easy” questions are rarely postponed. A hypothesis is that 1) the students prefer to answer to “easy” questions first, and 2) that students recognize “easy” questions.

Finally, the question 3 of test n°2 is the most postponed question, over the three tests. The
question is about error messages in spreadsheets, like two others questions in the other tests, but it is the only multiple-choice-multiple-answer question. It seems that many students when discovering this new type of question decided to postponed it. Moreover, globally, students didn’t succeed in answering it; it is a ‘difficult’ question.

About the Time Spent on Questions
As we already notice, the tests were time-constrained according to the level of difficulty the teacher attributes to them (test 1: 10 minutes, test 2: 20 minutes, test 3: 15 minutes). Digital pens collect time-stamped strokes. SEGELL computes the time spent on each question, adding writing time and time spent before to write (latency). Considering both time and type of questions, it appears that in average students spend more time (latency plus writing) on short-answer questions than on multiple-choice questions. This result may seem obvious. However considering latency only, the figure 7 shows that some multiple-choice questions of the test n°2 (questions 5, 6 and 8) took more time than some short-answer questions. That is also the case for the two other tests. Considering both spent time and success rates of questions, no general relation appears between them. It is certainly more interesting to draw up categories of questions: “difficult and time-consuming”, “easy but time-consuming”, “difficult but quickly answered”, “easy and quickly answered”, etc. For instance the short-answer question 4, in test n°1 (see figure 5) has a high average latency, but a good success rate (it is classified as ‘easy’). On the other hand, the multiple-choice question 7 (see Figure 5) has also a high average latency, but a bad success rate (it is ‘difficult’). In other words, some questions are time-consuming but finally successfully completed by students, whereas other questions are time-consuming and are not well completed.

However, the latency ascribed to a question placed after a postponed one may be overestimated. For instance, on the figure 7, the average latency of question 4 is far higher than others. We observed that 7 students have postponed their answer to the question 3 (the question just before question 4). Part of the latency attributed to question 4 may be in fact a time spent on reading a question 3. This case appears on the chart showing average

Figure 7: Test n.2, average latency on each question (9 students). Dark grey questions are short-answer questions, and light grey questions are multiple-choice questions. Question 3 is multiple-answer
time, because many students have postponed the question, thus much latency have been over-estimated.

**About Individual Answering Processes**

Segell provides individual ‘chronological progressions’. These charts show how much time one student spent on each question, and how he/she ordered his /her answers to the questions. Figure 8 shows that student ROBE begun by question 3, and then spent more than 3 minutes on question 2. He/she gave 4 correct responses and then failed to answer to questions. It seems that he/she postponed to the end 3 questions (5, 8 and 9) that were difficult for him/her. Regarding the chronological progressions of students on the three tests, we observed that some students adopt the same way of doing on the three tests. 2 students answered to questions in the order they are proposed, and postponed 1 question or none in each test. On the contrary, 4 students never answer in the proposed order, and postponed from 2 to 6 questions in each test.

![Figure 8: Test n.3, chronological progression of the student 'ROBE'. Questions are on the ordinate axis and time is on the abscise axis. The drawn line shows the order in which the student filled in the question, and the time he/she spent on each questions. White dots are added when answers are correct and black dots are for bad answers](image)

**Discussion**

The analysis of times, collected with digital pen and paper, give more information on the way students answer to paper assessment tests. How can we exploit this information in an educational perspective?

We have shown that data on time can be achieved on paper tests, using the digital pen and paper. We assume that analysis of times give a characterization of assessment tests and questions that could be used to enhance the assessment and to improve student training. For instance, our results concerning the order of answering the questions show that some questions were not only ‘difficult’, as their success rates were low, but were also postponed by a lot of students. These questions have hindered students’ answering process. The teacher could take it into account for students’ assessment. On another hand, we can qualify questions regarding spent time, and especially identify ‘time-consuming’
questions. A teacher could focus on these questions, discuss them with students in order to determine their difficulties, and train them on similar questions.

We could also take benefits from such data in the area of large-scale assessment tests, like the OECD PISA program. In 2006, some countries have administrated a computer-based assessment of students’ scientific literacy in the framework of the OECD PISA program. Collecting more information, such as time taken per item, keystrokes made and a student’s movement through the questions was among the benefits of the method cited in (OECD, 2010). Unfortunately, such data has not been used in the analysis.

More generally, there is a lack of research on this issue. In order to be able to interpret such data we need references. A solution could be to build calibrated tests, with time references for each question.
Conclusion

This first experiment on assessment tests, gives interesting results concerning time on assessment test logs. We could formulate some hypothesis on students’ strategy when answering the tests: answering first ‘easy’ questions, postponing ‘difficult’ questions. We also observed that some questions are time-consuming: that the case of some ‘difficult’ questions, but also of some ‘easy’ questions. We observe that the latency—the time spent on a question before to write the answer—may be significant, regardless the type (multiple-choice or short-answer) of the question.

Although, indicators calculation may be performed with general software tool, as spreadsheets, the platform Segell greatly facilitates the work. It computes time indicators automatically, it supports the customization of data by storing classifications of fields, and it edits interesting charts.

Now, we would like to investigate two main directions. One perspective is to adapt our methodology and our tool, Segell, to online assessment tests, proposed in e-learning platforms. The idea is to enrich online tests with scripts that record numerous actions and events made by the respondent, like mouse clicks, roll over or focus, etc. We would certainly get richer traces than with digital pen, and could study more precisely the ways students answer to tests, in distance education.

Moreover, until now, we mostly adopted a researcher’s point of view, and developed mainly indicators that help to study populations. A teacher, or a student, would certainly prefer to get results in terms of individual performances. For instance, get the mark, the time and the rank, of each answer, and, furthermore, have an appreciation about this time (too long, longer than others), a comparison between the mark, or the performance and time.

The other perspective would be to continue our investigation on the graphical representations of the traces given by time stamped logs. Firstly, we would like to add charts that illustrate a spatial-time representation of traces by drawing the path of the answers on a picture of the form. We can easily do that, by using the x, y coordinates of the strokes.
References


Abstract
Website quality evaluation is generally prone to subjective interpretations unless it is quantified by a web quality standard model. The first model identifying software quality was introduced in the mid seventies, followed by the ISO series 9126 defining and describing the quality evaluation process in terms of six major categories, namely: functionality, usability, efficiency, reliability, maintainability and portability.

The current paper presents a case study of the top ten ranking Arab World Universities Websites, evaluating them using the ISO 9126 guidelines. The study shows that none of these websites follow the basic quality measurements, and suggests ways to improve them.

Keywords: Arab World, Universities Websites, Quality Evaluation, ISO, Case Study

Introduction
The rapid growth of e-learning and on-line education leads to creating a great number of websites capable to provide this type of education. The quality of the website is of great importance to the education institutions as well as to the education seekers. The quality of a website makes a website profitable, user friendly and accessible, and it also offers useful and reliable information, providing good design and visual appearance to meet the users' needs and expectations [Hartmann, 2008]. Website quality is dependent on the quality of the software. A set of metrics has been proposed for quantifying website quality attributes since the nineties; known as QEM [Consortium, 2000]. In the last years, quantitative surveys and domain-specific descriptive evaluations have emerged [Lohse, 1998]. However in this direction we need a flexible engineering-based methodology and tools to assist evaluators in the assessment process.

Web-site QEM methodology has the following a set of phases and [Olsina, 1999]:

a. Determination of assessment goals and the user standpoint
b. Definition and specification of quality requirements
c. Definition and implementation of the elementary evaluation
d. Definition and implementation of the partial/global evaluation
e. Analyses of outcomes and recommendations

This paper presents a quality perspective case study including the 2010- Alexa ranking of the top Ten Arabic Universities [www.webometrics.info], and evaluating them using the ISO 9126 guidelines. The study shows that none of these websites
follow the basic quality measurements, and suggests ways to improve them.

**Literature Review**

Web-site quality takes many definitions and interpretations, among them are:

a. Quality is the function of a product that changes the world for the better
   De Marco [DeMarco,1999]

b. Quality of Websites) could be measured from two perspectives: Programmers, and end-users
   [Liburne,2004]. The aspects of website quality from programmers focus on the degree of Maintainability, Security, Functionality, etc, while the end-users are paying more attentions to Usability, Efficiency, Creditability, etc.

c. The ISO 9126 definition of quality for software products is [ISO,2001]: The totality of features and characteristics of a software product that bear on its ability to satisfy stated or implied needs.

d. A website is just like software defined in terms of a system of attributes, e.g. readability or coupling. Finally an assessment of the attributes that is a certain product possesses. These aspects taken together are called the Quality Model [Fenton,1998].

Luisa et al [Mich,2003], introduced a website quality model which shows an approach to the definition and measurement of website quality. It describes the trade-off between the user’s needs to be well-established and flexible functions to permit the web application with diverse content.

Generally the website quality is prone to subjective interpretations unless it is quantified by a web quality model. A web quality model needs to define website quality requirements which are identified by a set of measurable attributes and meet the users’ expectations. In other words, to evaluate the quality of website, the appropriate metrics have to be defined.

The first model identifying quality within software was in the mid 1970’s. The International Organization for standardization (ISO) in cooperation with the International Electro-technical Commission (IEC) finished the development of the new standard “ISO 9126 - Information Technology – Software Product Evaluation – Quality characteristics and guidelines” [ISO,2001]. It defined the quality model that can be applied to any kind of software product or service. In the process of standard revision, two series have been established: series ISO 9126 defined the quality model and series ISO 14598 described the quality evaluation process. This standard divided quality into six basic characteristics: functionality, usability, efficiency, reliability, maintainability and portability. Figure 1 is represents the hierarchy of the given model.
In recent years, several experts have worked on different proposals to improve this website quality model, including methodologies [Bevan,1999; Brajnik,2001; Oehler,2008; Signore,2005; Zhang,2002] quality frameworks [Cornelia,2001], estimation models [Z. Li,2009; Mich,2003], criteria [W3C,2006], usability guidelines [Nantel,2008], metrics [Nielsen,1993; Calero,2005] and web evaluation tool.

Quality assessment model Nakwichian and Sunetnanta [NCSEC,2003] presents a user-centric web evaluator, which evaluates website quality with respect to access by different end-user groups. The model defines common quality features as a guideline of website quality assessment. They designed a generalized assessment process that can be applied to diverse end-user domains. Their quality model is built on ISO/IEC 9126 and IEEE 1061 standards.

Brajnik [Brajnik,2001] suggested the adoption of Goal-Question-Metric paradigm as a useful framework for web-site quality.

Fitzpatrick et al [Fitzpatrick,1999] looked at quality models with human computer interaction standards. They defined a general set of 12 external and 5 internal quality factors. External factors included suitability, installability, functionality, adaptability, ease-of-use, learnability, interoperability, reliability, safety, security, correctness and efficiency. Internal attributes included maintainability, testability, flexibility, reusability and portability.

Fitzpatrick later identified an additional 5 web site-specific characteristics: visibility, intelligibility, credibility, engagibility and differentiation [Fitzpatrick,2000].

Olsinan et al [www.webometrics.info] apply the following steps for web-site quality assessment:

a. The specification of goals and the user standpoint, where the evaluators define and refine the goals and scope of the evaluation process. The outcomes might be useful to understand, improve, control or predict the quality of Web artifacts.

b. The definition of Web-site quality requirements, where, the evaluators specify the quality characteristics and attributes, grouping them in a requirement tree.

c. The definition of elementary criteria and measurement procedures (also called the determination of the elementary quality preference), where the evaluators define the basis for elementary evaluation criteria and perform the measurement and rating process. The outcome is an elementary
preference, which can be interpreted as the degree or percentage of satisfied requirement.

d. The aggregation of elementary preferences to yield the global quality preferences, where the decision-makers prepare and perform the evaluation process to obtain a global preference indicator for each selected product.

e. The analysis, the assessing, and comparison of partial and global quality preference, where the evaluators assess and compare elementary, partial and global quantitative results regarding the established goals and user standpoint. The outcomes might be useful to understand the Web artifacts quality, and recommendations can be suggested.

The Quality Requirement Tree

Figure 1 represents the quality requirement tree for academic sites. It includes over a hundred and twenty characteristics and attributes for the academic site domain. The tree helps to classify and group the elements that might be part of a quantitative evaluation, comparison, and ranking process [Bevan, 1999]. In order to effectively select quality characteristics and attributes for evaluation purposes, we should consider specific kind of users [Edward, 2001]. Specifically, in the academic domain, there are three different audiences regarding the visitor standpoint as studied elsewhere [Edward, 2001].
1. Usability
1.1 Global Site Understandability
1.1.1 Global Organization Scheme
1.1.1.1 Site Map
1.1.1.2 Table of Contents
1.1.1.3 Alphabetical Index
1.1.2 Quality of Labelling System
1.1.3 Student-oriented Guided Tour
1.1.4 Image Map (Campus/Buildings)
1.2 Feedback and Help Features
1.2.1 Quality of Help Features
1.2.1.1 Student-oriented Explanatory Help
1.2.1.2 Search Help
1.2.2 Web-site Last Update Indicator
1.2.2.1 Global
1.2.2.2 Scoped (per sub-site or page)
1.2.3 Addresses Directory
1.2.3.1 E-mail Directory
1.2.3.2 Phone-Fax Directory
1.2.3.3 Post mail Directory
1.2.4 FAQ Feature
1.2.5 Form-based Feedback
1.2.5.1 Questionnaire Feature
1.2.5.2 Guest Book
1.2.5.3 Comments
1.3 Interface and Aesthetic Features
1.3.1 Cohesiveness by Grouping Main Control Objects
1.3.2 Presentation Permanence and Stability of Main Controls
1.3.2.1 Direct Controls Permanence
1.3.2.2 Indirect Controls Permanence
1.3.2.3 Stability
1.3.3 Style Issues
1.3.3.1 Link Color Style Uniformity
1.3.3.2 Global Style Uniformity
1.3.3.3 Global Style Guide
1.3.4 Aesthetic Preference
1.4 Miscellaneous Features
1.4.1 Foreign Language Support
1.4.2 What’s New Feature
1.4.3 Screen Resolution Indicator

2. Functionality
2.1 Searching and Retrieving Issues
2.1.1 Web-site Search Mechanisms
2.1.1.1 Scoped Search
2.1.1.1.1 People Search
2.1.1.1.2 Course Search
2.1.1.1.3 Academic Unit Search
2.1.1.2 Global Search
2.1.2 Retrieve Mechanisms
2.1.2.1 Level of Retrieving Customization
2.1.2.2 Level of Retrieving Feedback
2.2 Navigation and Browsing Issues
2.2.1 Navigability
2.2.1.1 Orientation
2.2.1.1.1 Indicater of Path
2.2.1.1.2 Label of Current Position
2.2.1.2 Average of Links per Page
2.2.2 Navigational Control Objects
2.2.2.1 Presentation Permanence and Stability of Contextual (sub-site) Controls
2.2.2.1.1 Contextual Controls Permanence
2.2.2.1.2 Contextual Controls Stability
2.2.2.2 Level of Scrolling
2.2.2.2.1 Vertical Scrolling
2.2.2.2.2 Horizontal Scrolling
2.2.3 Navigational Prediction
2.2.3.1 Link Title (link with explanatory help)
2.2.3.2 Quality of Link Phrase

2.3 Student-oriented Domain Features
2.3.1 Content Relevancy
2.3.1.1 Academic Unit Information
2.3.1.1.1 Academic Unit Index
2.3.1.1.2 Academic Unit Sub-sites
2.3.1.2 Enrollment Information
2.3.1.2.1 Entry Requirement Information
2.3.1.2.2 Form Fill/Download
2.3.1.3 Degree Information
2.3.1.3.1 Degree Index
2.3.1.3.2 Degree Description
2.3.1.3.3 Degree Plan/Course Offering
2.3.1.3.4 Course Description
2.3.1.3.4.1 Comments
2.3.1.3.4.2 Syllabus
2.3.1.3.4.3 Scheduling
2.3.1.4 Student Services Information
2.3.1.4.1 Services Index
2.3.1.4.2 Healthcare Information
2.3.1.4.3 Scholarship Information
2.3.1.4.4 Housing Information
2.3.1.4.5 Cultural/Sport Information
2.3.1.5 Academic Infrastructure Information
2.3.1.5.1 Library Information
2.3.1.5.2 Laboratory Information
2.3.1.5.3 Research Results Information
2.3.2 On-line Services
2.3.2.1 Grade/Fees on-line Information
2.3.2.2 Web Service
2.3.2.3 FTP Service
2.3.2.4 News Group Service

3. Reliability
3.1 Non-deficiency
3.1.1 Link Errors
3.1.1.1 Dangling (broken) Links
3.1.1.2 Invalid Links
3.1.1.3 Unimplemented Links
3.1.2 Miscellaneous Errors or Drawbacks
3.1.2.1 Deficiencies or absent features due to different browsers
3.1.2.2 Deficiencies or unexpected results (e.g. non-trapped search errors, frame problems, etc.) independent of browsers
3.1.2.3 Destination Nodes (unexpectedly) under Construction
3.1.2.4 Dead-end Web Nodes

4. Efficiency
4.1 Performance
4.1.1 Quick Access Page
4.2 Accessibility
4.2.1 Information Accessibility
4.2.1.1 Support for text-only version
4.2.1.2 Readability by deactivating Browser Image Feature
4.2.2 Window Accessibility
4.2.2.1 Number of panes regarding frames
4.2.2.2 Non-frame Version

Figure 2. Quality requirement tree for academic sites
Quality Perspective Case Study

The main goals of the study are as follows:

a. Find the top ten international university web sites
b. Find the top ten Arab university web sites
c. Use the Quality Requirement Tree to evaluate the top ten Arabic sites
d. Apply simple statistical analyses for the top ten sites data (Arab and International)
e. Recommend and suggest some improving steps to elevate the Arab sites ranking

Figure 3. Academic sites

Alexa Ranking

Table 1 represents the 2010 Alexa ranking of the top ten Arabic universities [www.webometrics.info]
Table 1- Alexa ranking 2010 of the top Ten Arabic Universities

<table>
<thead>
<tr>
<th>CONTINENT RANK</th>
<th>UNIVERSITY</th>
<th>COUNTRY</th>
<th>WORLD RANK</th>
<th>SIZE VISIBILITY</th>
<th>RICH FILES</th>
<th>SCHOLAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>King Saud University</td>
<td></td>
<td>164</td>
<td>161</td>
<td>203</td>
<td>171</td>
</tr>
<tr>
<td>2</td>
<td>King Fahd University of Petroleum &amp; Minerals</td>
<td></td>
<td>178</td>
<td>149</td>
<td>218</td>
<td>189</td>
</tr>
<tr>
<td>3</td>
<td>King Abdulaziz University</td>
<td></td>
<td>391</td>
<td>305</td>
<td>355</td>
<td>344</td>
</tr>
<tr>
<td>4</td>
<td>Umm Al-Qura University</td>
<td></td>
<td>681</td>
<td>249</td>
<td>1,146</td>
<td>615</td>
</tr>
<tr>
<td>5</td>
<td>An-Najah National University</td>
<td></td>
<td>1,160</td>
<td>637</td>
<td>2,270</td>
<td>724</td>
</tr>
<tr>
<td>6</td>
<td>American University of Beirut</td>
<td></td>
<td>1,181</td>
<td>966</td>
<td>1,787</td>
<td>908</td>
</tr>
<tr>
<td>7</td>
<td>United Arab Emirates University</td>
<td></td>
<td>1,521</td>
<td>1,621</td>
<td>2,301</td>
<td>1,268</td>
</tr>
<tr>
<td>8</td>
<td>Cairo University</td>
<td></td>
<td>1,604</td>
<td>1,765</td>
<td>1,945</td>
<td>2,055</td>
</tr>
<tr>
<td>9</td>
<td>American University in Cairo</td>
<td></td>
<td>1,657</td>
<td>2,002</td>
<td>1,646</td>
<td>1,934</td>
</tr>
<tr>
<td>10</td>
<td>Kuwait University *</td>
<td></td>
<td>1,863</td>
<td>2,733</td>
<td>2,661</td>
<td>1,983</td>
</tr>
</tbody>
</table>

Table 2 represents the Alexa ranking 2010 of the top ten universities [www.webometrics.info]

Table 2- Alexa ranking 2010 of the top ten universities

<table>
<thead>
<tr>
<th>WORLD RANK</th>
<th>UNIVERSITY</th>
<th>COUNTRY</th>
<th>SIZE VISIBILITY</th>
<th>RICH FILES</th>
<th>SCHOLAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Harvard University *</td>
<td></td>
<td>3</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Massachusetts Institute of Technology</td>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Stanford University</td>
<td></td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>University of California Berkeley</td>
<td></td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Cornell University</td>
<td></td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>University of Michigan</td>
<td></td>
<td>8</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>University of Minnesota</td>
<td></td>
<td>10</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>University of Washington</td>
<td></td>
<td>9</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>University of Wisconsin Madison</td>
<td></td>
<td>7</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>University of Texas Austin</td>
<td></td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3 represents the site ranking per region/country
The web sites ranking position depends upon the following factors: (Size-visibility-rich files-scholar) as presented by table 4 [WWW.Webometrics.info]

Table 4- the measure of the Web metrics ranks

<table>
<thead>
<tr>
<th>WEBOMETRICS RANK</th>
<th>VISIBILITY (external inlinks)</th>
<th>SIZE (web pages)</th>
<th>RICH FILES</th>
<th>SCHOLAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50%</td>
<td>20%</td>
<td>15%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Figures 4 represent the top 200 and 500 universities distributed by region [?], which show the lowest positions of the Arab sites among the international ones.
Figures 4. The Arab world web-sites quality assessment position

Statistical Analysis

From tables 1 and 2 we can construct the following tables:

Table 5- Size by Arab Domain

<table>
<thead>
<tr>
<th>RANK</th>
<th>COUNTRY</th>
<th>NATIONAL DOMAIN</th>
<th>COM</th>
<th>NET</th>
<th>ORG</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>Saudi Arabia</td>
<td>19,500</td>
<td>61,200</td>
<td>11,100</td>
<td>3,080</td>
<td>1,483</td>
<td>96,363</td>
</tr>
<tr>
<td>69</td>
<td>Egypt</td>
<td>2,480</td>
<td>38,100</td>
<td>4,690</td>
<td>6,130</td>
<td>599</td>
<td>51,999</td>
</tr>
<tr>
<td>79</td>
<td>Kuwait</td>
<td>6,900</td>
<td>22,200</td>
<td>3,420</td>
<td>2,650</td>
<td>376</td>
<td>35,546</td>
</tr>
<tr>
<td>80</td>
<td>Emirates</td>
<td>8,890</td>
<td>23,300</td>
<td>2,200</td>
<td>435</td>
<td>382</td>
<td>35,207</td>
</tr>
</tbody>
</table>

Table 6- Size by international Domain

<table>
<thead>
<tr>
<th>RANK</th>
<th>COUNTRY</th>
<th>NATIONAL DOMAIN</th>
<th>COM</th>
<th>NET</th>
<th>ORG</th>
<th>OTHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
<td>987,625</td>
<td>22,430,000</td>
<td>878,000</td>
<td>1,280,000</td>
<td>395,107</td>
<td>25,970,732</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>1,510,000</td>
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<td>53,000</td>
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<td>3</td>
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<td>651,000</td>
<td>70,300</td>
<td>59,600</td>
<td>24,799</td>
<td>1,965,019</td>
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<td>Germany</td>
<td>646,000</td>
<td>260,000</td>
<td>47,500</td>
<td>121,000</td>
<td>59,795</td>
<td>1,134,295</td>
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</tbody>
</table>

Findings

Analyzing the data given in the previous tables and figures using (ANOVA) test, presented by table 7, and figure 5, we reach the following findings:

1. The sample is not regular
2. The first 10 international sites there is no significant different between their positions, while in case of the Arab sites the position difference is very obvious
3. The first 1000 international sites includes only four Arab sites

4. No Arab sites universities included among the top 100 international sites

Table 7- the result of ANOVA test

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
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<td>2272947.349</td>
<td>22.596</td>
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<tr>
<td>Within Groups</td>
<td>6035369</td>
<td>60</td>
<td>100589.479</td>
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<td></td>
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<tr>
<td>Total</td>
<td>49221366</td>
<td>79</td>
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</tbody>
</table>

Figure 5. the ANOVA test chart

Suggestions and Improvement Recommendations
The previous analysis suggest that to improve the Arab site quality to reach higher ranking levels they should follow the ISO Model and make sure to apply the position parameters as specified in table 4, namely visibility, size, Rich files and scholar.

Future Research
The current research focuses on the web site quality issues, and we believe that web site Search Engine Optimization "SEO" is very important to the quality measures. Therefore the authors of this research are planning to address the "SEO" in their future research.
References


T. DeMarco, Management Can Make Quality (Im) possible. Boston: Cutter IT Summit, April 1999.


International Avatar Collaboration and Student Learning in Immersive Worlds

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Abstract
This paper reports an initial exploration of the use of Second Life to host international student learning and avatar collaboration. It considers how students perceive an immersive environment and investigates the manner in which students interact and collaborate through their avatars. The paper describes the building of a seminar space on Second Life and the design and facilitation of two seminars in that space, before reporting the findings, derived from student interviews, the investigators’ reflective diaries and observations of the sessions’ video recordings.

The findings indicate that while obstacles exist to the effective use of virtual worlds for this purpose, this evolving technology has significant potential. Students were generally sensitive to the emotional qualities of immersive environments. However, these environments require facilitators to use new tools for maximum learning effectiveness. The impact of using anonymous avatars on student communication and collaboration was mixed: some felt freer to contribute and ask questions; others felt the anonymousness and the absence of body language hindered their communication. Some participants were involved, in the absence of some of the usual cues, in trying to re-construct a context. Overall, the findings suggest that immersive environments call for new ‘rules of engagement’

Keywords: virtual worlds, social presence, collaboration, immersive environments, collaborative learning

Introduction
The idea of immersive learning environments is seductive for higher learning institutions whose co-producers of learning (students, academics and tutors) may be spread around the world. Such immersive worlds as Second Life can bring together, in one – virtual – world, people residing in different locales, achieving increased student interaction and enabling them to network internationally, at a very low cost. In immersive worlds students might also experiment and play, comforted by the anonymity afforded by the mediation of an avatar. This would enhance the social interaction of a virtual community, while avoiding the mainstreaming and inhibiting aspects of real learning communities.

The project reported here investigates two main questions. First, how do students perceive immersive environments and what role do atmospheric elements play with regard to the main learning activity? Second, how do students feel about mediating their interaction through an avatar, and in which ways does the mediation help or impede communication, involvement and collaboration? The project uses data obtained via student interviews, investigators’ diaries and observation. This paper is organised as follows: first, relevant literature dealing with these two questions; second, the practicalities of setting up a virtual seminar space on Second Life are
discussed and the study, which included the deployment of two seminars in that space is reported. Third, the investigation’s findings are reported. Finally, limitations and avenues for further research are considered.

Literature Review

Interacting in an Immersive Environment – Freedom to Experiment and Play?

While in reality people are at their desk, in front of a computer screen, telepresence, facilitated by the interactivity and the vividness of the medium (Steuer, 1992), can make them feel part of a remote environment. Websites can also convey social presence, or a feeling of warmth and sociability (Gefen and Straub, 2003). Therefore, immersive learning environments could be propitious to student involvement and collaboration. Educators have also noted that virtual learning communities lead to greater collaboration and more even participation (Falloon, 2010; Hansen, 2008). This may happen through a sense of belonging to a virtual community (Barnes, Wetsch and Hair, 2008; Peltier, Drago and Schibrowsky, 2003). Virtual worlds deprive their visitors of cues as to the reality behind the world represented on their screen, thus potentially confusing their sense of the real and the virtual (Bayne, 2008). However, the ‘non-real’ nature of immersive learning worlds may also facilitate learning in new ways. In particular, anonymity may prevent shyness, self-consciousness or fear of embarrassment from inhibiting participation. Learners can make mistakes safely (Tambone et al, 2009). Virtual worlds have been used successfully to help socially and emotionally impaired young people negotiate their social interactions more successfully, because they remove some of the difficulties of being in a real group (van Dijk, Hunneman and Wildlevuur, 2008). Sweeney and Ingram (2001) also report that students felt more comfortable and less inhibited during web-based tutorials. In particular, Asian students felt more comfortable speaking in online than in real tutorials; their Australian colleagues detected, in their contribution, quality, depth and humour which they had not noticed during face to face sessions. For these reasons, in spite of the absence of important cues and the uncertainties associated with non-real environments, the co-production of knowledge may be made easier in an immersive world: students may feel freer to ask for help or provide help since their behaviour will not have consequences on their permanent identity.

Virtual Environments and their Impact on Consumers of Knowledge

Marketers are well aware of the importance of environments on consumers’ emotions, attitudes and behaviour. Kotler (1973) calls atmospherics, the creation of exciting retail environments, a “silent language” (p. 48) of marketing communication. In a review of atmospheric studies, Turley and Milliman (2000) find overwhelming evidence of the impact of atmospheric elements on consumer evaluations and behaviour. Bitner (1992) highlights the role of environments for service firms in visually representing their offering and in helping customers and employees co-produce the service. According to Kaplan and Kaplan’s (1982) Preference Framework, people prefer environments which both make sense and are involving. Rosen and Purinton (2004), Demangeot and Broderick (2010) verify that these principles hold for online shopping environments; Riva et al. (2007) find that virtual reality acts as an affective medium: anxious and relaxing environments produce anxiety and relaxation respectively. Besides their ability to communicate meaning and emotions, environments are also conveyors of social interaction, as Bennett and Bennett (1979, p. 192) state: “All social interaction is affected by the physical container in which it occurs”. Thus, the
immerse environment in which student avatars meet may affect their emotions, convey messages about the learning context and protocols, as well as facilitating or hindering their social interaction with the facilitator and the other students.

**Research Methodology**

**Participants and their Avatars**

Two virtual seminars were organised, to which the University’s international MBA students, residing in 8 different locales in Europe, the Middle East and Asia, were invited on a volunteer basis. Interested students contacted the technologist (they remained anonymous to the facilitator). They were matched to an avatar whose first name was the name of a Scottish town – so as to avoid revealing students’ gender or ethnicity. They were given directions on how to change their appearance (physical, dress) if they wished, but were instructed not to change genders, to keep a human appearance (i.e. no animal or mask faces), and to dress in a manner which would not offend. The facilitator’s and the technologist’s avatars carried their real names and matched their real appearance. Students were offered a short one-on-one initiation session to Second Life, during which they could test audio and navigation.

**Design of the Immersive Learning Environment**

The seminar space (see Figure 1) was developed from an ‘off-the-shelf’ building bought in Second Life and customised. Armchairs were arranged in a circle around a low table. Clocks showing the time in the students’ locales were placed on the walls, alongside images of the university’s main UK bricks-and-mortar campus, and photographs of international cohorts of students. Several planning meetings between the investigators took place in the space.

This kind of environment was deemed preferable to more lecture-like settings (see alternative environment considered, Figure 2), because of the nature of the exercise: collaborative discussion rather than tutor-led input.

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*Figure 1: Seminar space built for the purpose of this study*
Seminars: Organisation, Topics and Facilitation

A total of seven students participated in the study: three in the first seminar, four in the second. The seminar activities (role playing and brainstorming) were chosen so as to investigate the opportunity of using virtual worlds to experiment and play. The first seminar involved students role playing British Airways’ (BA) top marketing management team. The seminar was attended by the facilitator, the technologist, an assistant whose avatar’s only role was to be seen to video record the session, and three MBA students studying at different international centres who played the following roles: head of loyalty programme, head of brand and customer experience, head of Asia sales.

On entering Second Life, avatars arrived on a lawn just outside the seminar room. The first 10 minutes of the one-hour session were devoted to socialising. The avatars then proceeded to the seminar room. The facilitator and students sat on the armchairs around the low table, while the technologist and the video-recording avatar sat on chairs behind the group. The session consisted of negotiating three key lessons learnt from the ash cloud episode and three key priorities for the BA marketing team. The facilitator first asked each avatar, in a round robin format, to suggest three points. She then negotiated agreement on the group’s lessons learnt, and priorities. Finally, she re-capped to ensure agreement on the negotiated lists. In the last three minutes she thanked participants and reminded them that they would be interviewed by the technologist. The discussion took place using real voice.

The second seminar involved students brainstorming powerful MBA project ideas. It was attended by the facilitator, the technologist whose avatar was also seen video-recording the session, and four MBA students from different international centres. The facilitator was the last avatar to join the session, and it appeared that the participants had already begun chatting informally with one another. The discussion took place using text chat (rather than voice). The facilitator started by asking who wanted to suggest an issue which the group could brainstorm. She then asked all students to brainstorm suggestions and ideas for approximately 10 minutes, after which she synthesised the different points in a series of main themes. She projected two slides on the wall of the virtual seminar room, proposing ways to refine and strengthen project ideas. At the end of both seminars, she thanked everyone and
reminded them that the second investigator would contact them shortly for an interview.

**Data Collection**

Following each seminar, the second investigator interviewed the student participants by telephone. The topics covered during the semi-structured interviews included the students’ experience during the session, their feelings towards the anonymity afforded by their avatar, their interaction with other avatars, and their perceptions of the environment.

The data consists of: the video, audio and text recording of both seminars, the investigators’ reflective diaries, and the students’ interview data. The data was coded and analysed according to the following main themes: environment, immersion, facilitation, interaction, avatar identification, avatar collaboration, trust and communication, culture.

**Findings**

This section reports the results from the enquiry, in terms of the perceived qualities of the immersive environment, its suitability for the task of learning and collaboration, and the impact of the mediation of avatars on the participants’ sense of identity and their participation in the learning events.

**Perceptions of the Immersive Learning Environment**

The investigators’ intentions, in terms of creating a relaxing, warm, yet relatively formal environment was perceived as such by students: “The room is great. It gives people a feeling of comfort – a relaxed environment... The atmosphere is right”; “Yeah, cool, cool, nice. I visited the other room as well, the more lecture style. But for brainstorming, very comfortable, the slide presentation was good, very nice. The photos on the wall were great. I walked up really close, had a look, see who I could recognise from the photos, yeah.”

Interestingly, none of the participants questioned the viability of hosting learning events in immersive environments, nor did they have difficulties associating immersive environments with learning.

While the environment had been developed with a view to simulating a serious but relaxing environment for a university seminar, one student suggested that the session could have been more immersive if it had taken place in an environment echoing the context of the role play, such as the BA head office or an airplane: “If we’re simulating a BA situation then put us in a BA room!”.

The facilitator experienced the immersive environment as a means to ‘make real’ the learning situation. During the seminars, she looked, on her screen, at the avatar which was speaking, as a means of focusing her attention. She watched avatar movements (some avatars decided to change seats) and worried when one avatar was signaled by the system as being ‘away’. Similarly, when the whole group moved towards a screen to see a slide and for a moment her camera view lost sight of some avatars, she became worried that they had ‘left’. Thus, when people experienced telepresence in the immersive environment, it was conducive to learning by providing a context and giving some reality to the situation. In a sense, it ‘re-oriented’ people by directing their attention to the situation and the people it symbolises. However, telepresence was not experienced by all participants.

An additional consideration is the actual physical environment from which students ‘join in’. The ability to be in their own home rather than in the university was seen as an advantage by some: “I can sit in laid-back in my bedroom and participate in a discussion session like this. That really makes me much relaxed and much easier.”
**Designing and Facilitating Learning Events in Immersive Environments**

It should be noted that while students had many suggestions regarding ways to improve the learning, none questioned the appropriateness of immersive worlds in a learning context. This was in a sense unexpected, since the technology is still immature and poses challenges to developing smooth learning experiences. This point is also important, in view of some universities’ and individual academics’ positions regarding Second Life, which they associate with gaming and pure entertainment (Kirriemuir, 2010).

Most students could articulate clearly what could or should be changed to make the environment more supportive of the staging of the seminars. As suggested by a student, the “mechanism or the method of delivering such session” require further thought. Perhaps the most important challenge was the absence of body language to indicate clearly who was speaking, and to whom. For instance, students noted the absence of the facilitator’s eye contact to either draw them into participating or, conversely, invite them to stop talking: “In real life seminar I believe [the facilitator] or our lecturer will be able to say thank you, okay, [...] let the other person talk etc. but in that case, they can, the only thing they can do is press the talk button and speak loud and to try to beat me in terms of volume rather than doing any physical, rather than doing any physical thing showing the, oh, I want to talk to you.” Also, it was difficult to be sure who was talking, and to whom. “You’re not sure if they’ve responded to what you’ve just said or whether they’re talking to someone else”.

The two learning situations (role play and brainstorm), which do not require many props in real life, were more challenging in Second Life. For instance, students remarked that during the role play session, they would have wanted the facilitator to note the key points: “If there [is] a whiteboard on (...) Second Life, they can virtually put things that we discussed”; “You need to have a whiteboard to capture our attention”. During the brainstorming session, two slides (prepared in advance by the facilitator) were projected onto the wall of the virtual seminar room by the technologist. Yet, many students had difficulties seeing the slides properly. While the facilitator asked students to stand up and come closer to the wall where the slides were projected and saw this as a means of energising the seminar (in the same way that she likes to energise real-life seminars by asking people to come closer to a display on a wall), students preferred to learn how to set their camera angle so as to be able to view the slides better while their avatars remained seated.

However, some seemed insufficiently immersed in the environment to feel that there was a qualitative difference between a Second Life seminar and a video conference, and noticed their attention leaving their PC monitor: “The only concern I have is how different is just avatar from a conference call”. Nevertheless, a majority of the participants were positive in regards the potential to overcome these issues and there was an appreciation that the technology is immature. The technologist observed that some students appeared to have a greater grasp of the Second Life controls which may have enabled them to take a more active part in the seminar. Similarly, some students’ poor audio quality affected their ability to participate fully.

**Impact of Avatars on Identities and Interactions**

The research aimed to ascertain how students and facilitator feel about their avatar and mediating their interaction through an avatar – does it help or impede communication, involvement and collaboration? While all students were not all fully identifying with
their avatars, they all appreciated the usefulness of interacting through avatars:
“Avatar is going to be a convenient tool for me to meet with people or attend seminar etc.”
Some students felt that their avatar represented them, while for others, the avatar was them. For instance, one student commented on why he changed his avatar’s dress thus: “This is something I’m doing with my weekend so I’m going to put on jeans.”
There were diverse reactions as to whether students relished the anonymity and ‘second identity’ afforded by their avatars, as evidenced in the following reactions: “If I’d been using my own name would I have gone flying around the room, that’s an interesting question”, vs.: “Since I don’t know how people are feeling, I’ll just say my thing so I may have ruined some of the other people’s emotions or I have hurt them.” Some students felt freer to ask questions and provide suggestions ([face to face] “I take a lot of time formulating the question before I ask it because obviously the chance of, let’s say, if one asks between quotes-‘a stupid question’, the chance of being ridiculed on the spot is higher. Others maintained that the use of an avatar had no impact: “Unless he’s my boss or he’s my family elder, I don’t think I will change my communication behaviour [whether or not I use an avatar]”.
Students appeared frustrated by the lack of body language and eye contact that would indicate more clearly cues as to confidence and attitude. The absence of visual cue indicators left them less sure as to how their contributions were being received. “And [in real life] I am quite used to, to pay attention to (...) feelings through the face expression of the one I’m communicating with and respond to them”. Interestingly, neither seminar seemed to contain any initial ‘awkward’ moment, when people typically have to overcome feelings of shyness. There did not appear to be any need for an ice-breaker. This may have been because people’s facial expressions were not visible and therefore any awkwardness experienced by students could not be conveyed by their avatars. In this sense, feelings of awkwardness were filtered out of the virtual interaction.
Discomfort with the arbitrary and neutral physical appearance of the avatars caused some discomfort with some students (“It was kind of, blandness which you wouldn’t get in person”; “Just like talking to someone that does not exist”), several of whom attempted to make the avatar appear visually more like they do in the real world.
Playfulness caused various reactions. One student in the second seminar, frustrated that the use of text in preference to voice slowed proceedings down, deliberately flew around the room. “The experience of wandering around, looking around the room, flying, you know it's pretty cool”. Simultaneously, the student suggested that this kind of behaviour would have been inappropriate in a real world seminar room but his detachment from the environment seemed to ‘change the rules’. Other students appeared unsettled by the idea that they could ‘play’ before the start of the seminar, trying to sit on different surfaces and feeling ambivalent about doing this at a university seminar.
The avatars’ genderlessness and culturelessness means that the communication with each avatar was not affected by awareness of differences between high- and low-context cultures (Hall, 1973). Interestingly, in the absence of cues about who was ‘behind’ the avatars, the facilitator and some participants appeared involved in trying to ‘re-create’ identities using whatever cues were at their disposal, as expressed by this respondent: “The identities were not really known. So basically you treated the other person as a totally new person that you've met and that you're trying to find whatever information about him or (...) trying to understand the thoughts that they would
have”. However: “When that person was answering I was, sort of (…) trying to find out, (…) let’s say, a gender-related, gender-related ideas or was it like a sort of a cultural-related ideas. I couldn’t, it was a bit confusing. I was trying to, to analyse something which is not analysable, to be honest.”

However, anonymousness was betrayed by voice during the first seminar. The facilitator recognised one particular student and, through their accent, those who are based in the university’s Asia centres. The technologist observed that the second seminar, which used only text, obscured identities more successfully.

The virtual environment appeared to change the ‘rules of engagement’ between avatars, primarily as a result of the absence of body language cues, and the contextlessness and culturelessness of the avatars. As a result, people’s usual reasoning based on source credibility and message content cannot operate in the same manner. In particular, students were unsettled by the lack of clues about message source. For instance: “You don't know whether the person is credible in what they're saying. You have to take it very much on face value, you know” and: “If I cannot see the face of the one I communicated with, maybe I will have some doubts about their conversation because if you can’t see the face, you can’t see the expression, you don't know whether the guys is really serious of what he is talking about”. Conversely, students had difficulties dealing with the fact that they felt the weight of their message was diminished because people did not know who was behind their message: “I want to make sure that the one I am talking to knows it is me”. Additionally, the absence of body language was disturbing because it deprived them of the opportunity of getting feedback on how their message was received, as well as using body language as an integral medium for the communication of their own messages. For instance: “Sometimes when I talk too much sometimes that really makes me feeling bad. Am I talking too much? Because I cannot see the face of other colleagues” and: “You can't express your ideas through your body language”.

As a result, the actual content of the message may actually grow in importance, to compensate for the absence of any other cues or context. This may be translated into a fairer form of communication, as expressed by one of the students: “It kind of neutralises, any sort of, (...) people's biases, yeah?”

Additionally, this may change people’s sense of how they are perceived by others: “I saw [my] avatar but I didn’t, I didn’t really change my perception of myself or how I think others perceive me, perhaps. Because basically I felt others were perceiving me by what I was saying rather than what I look like”.

**Implications for Future Research and Conclusions**

Immersive worlds are inexpensive. While their use for education will undoubtedly increase in the future as the technology matures, users (teachers and learners) still need to overcome many hurdles. Also, the social implications of immersive worlds are still for the most part unknown. This project provides examples of early practice in bringing international students from different locales together in an immersive learning environment and should provide a useful starting point for educators wishing to organise a first immersive world seminar. The results suggest that immersive worlds provide educators with the means of reaching students quickly across borders to discuss topics of interest, and to generate new, more open behaviours among students. There remain, however, significant technological challenges. Limitations must be acknowledged. This study involved a small number of students (seven), who may have been the most technologically comfortable with immersive worlds. Could a larger group consisting of
students possessing differing technical abilities have usefully interacted immediately? Some technical issues relating to the organisation of international seminars in immersive worlds need to be considered. In countries where the use of voice-over-internet software is not allowed, seminars involving students in these countries need to use text chat.

The Second Life interface raised issues related to its complexity. Although students were offered one-to-one ‘inductions’, some appeared to have insufficient knowledge of the complex interface to achieve what they wanted to, especially in terms of finding the best camera angle to view the seminar on their screen.

Future research could consider whether avatars in immersive environments are particularly suited to learning situations dealing with controversial topics. While several students stated that the anonymousness of their avatar did not make a difference to what they said, social desirability may have influenced (at least partly) this response. These same students may find the anonymousness of their avatar comforting when dealing with more controversial or contentious topics. Equally, future research should compare the relative benefits and effectiveness of immersive worlds which replicate real learning environments, versus immersive worlds which are designed as ‘alternative worlds’, to support role play simulations and other scenarios. In particular, can the environment play an even more positive role, for instance in conveying the meaning of role play or facilitating small group socialisation and interaction? Research is underway to consider the extent to which the formality, the ‘believability’ and the similarity of the immersive environment affects the emotional and rational quality of the students’ learning experience.

In conclusion, the study has confirmed that immersive worlds are viable and promising environments for learning. There are immense opportunities to manipulate the learning environments so as to convey specific atmospheres and create particular settings. In these environments however, facilitators need to consider the most appropriate ways in which they can bring about learning. The usual arsenal of face-to-face teaching methods and props does not necessarily translate well in immersive worlds. However, as long as the learning event has a well-defined structure communicated to them, students appear able to adapt and trust the immersive world. They are able to experience the momentary suspension of real life identity and responsibilities – similar to what Coleridge (1817) termed “that willing suspension of disbelief” when referring to the reading of literature.
References


Considerations for the Adoption of Mobile Learning (m-Learning) at the University of Mauritius

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Abstract
Mobile Learning (M-Learning), a myth or reality? This is a question that has been ever-present. With the advances in technology, the way knowledge is imparted to learners has changed drastically and educators are now empowered with the possibility of communicating with learners from anywhere and at anytime. Mobile Learning can have different meanings for different communities and though related to e-learning and distance education, the primary focus of m-Learning is the learning process that takes place with mobile devices. Mobile devices can include palmtops, smart phones and general mobile devices. This paper provides an insight on Mobile Learning while considering the major barriers to overcome for its widespread use. The technologies involved for the deployment of m-Learning and the importance of multimedia for proper mobile learning are also considered. Finally a Mobile Learning System that has been developed at the University of Mauritius is presented and further improvements discussed.

Keywords: Mobile Learning, Mobile Devices, Wireless Technology, Multimedia, Multimedia Development

Introduction
“Mobile phones seem to be the only devices which are always with a person who is on the move and today”, with mobile operators offering different facilities, most people and business travellers carry their mobile phone with them. The craze for mobile applications have compelled quite a lot of companies to invest massively in the field of wireless mobile application but however, the challenges are numerous and so are the issues associated with them.

Mobile phones have become very popular during the last ten years, and Africa, specially has known a very high penetration of mobile phones. It has been shown this continent has bypassed fixed-line telecommunications in favour of mobile technology. This would undoubtedly set the stage for other facilities that were not present before, like access to internet from mobile phones, namely mobile commerce, mobile banking and mobile learning.

Mobile Learning focuses on the mobility of the user so as to support an increasingly mobile population. Mobile Learning is any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies. In other words mobile learning decreases limitation of learning location with the mobility of general portable devices. Portable devices include handheld devices, notebooks, mobile phones and mp3 players, just to name a few. “Mobile Learning is e-learning through mobile computational devices: Palms, Windows CE
machines, even your digital cell phone.” (Quinn 2000)

Table 1: Functionality and Mobility

<table>
<thead>
<tr>
<th>FUNCTIONALITY (E-learning)</th>
<th>MOBILITY (m-Learning)</th>
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<tbody>
<tr>
<td>Computers</td>
<td>PDA’s</td>
</tr>
<tr>
<td>Laptop Computers</td>
<td>Handhelds</td>
</tr>
<tr>
<td></td>
<td>Palmtops</td>
</tr>
<tr>
<td></td>
<td>Smartphones</td>
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<tr>
<td></td>
<td>Mobile Phones</td>
</tr>
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</table>

Transition from e-Learning to m-Learning

E-learning is essentially the computer and network-enabled transfer of knowledge and skills. E-learning has contributed enormously to better educate our learners and has been very much beneficial and still is crucial in the learning process. Very often, blended with the traditional classroom approach, it is able to provide flexible and self-paced learning. Mobile learning on the other hand, is different from e-learning, since it is not just electronic, it is mobile (Shepherd 2001). Mobile learning is seen as the natural evolution of e-learning, according to Hoppe, Joner, Millard, and Sharples (2003), “m-learning is eLearning using a mobile device and wireless transmission.” In Harris’s (2001) opinion, “m-learning is the point at which mobile computing and e-learning intersect to produce an anytime, anywhere learning experience.”

Possible Scenarios for Mobile Learning

Mobile Education in Colleges and Universities

Mobile learning can be particularly interested in Universities and Colleges. Different teachers and disciplines will have different conceptions of teaching (Kember 1997) that they will attempt to bring to education. Mobile Learning can easily be used to complement the already existent classroom approach and encourage the learner to be more actively involved in the learning process. Some argue that what mobile learning is personalized and situated and it ends up encouraging the constructivist learner through situated learning. Self-exploration and problem solving exercise can easily be worked out from mobile devices. The following is a Personalized Mobile Mathematics Tutoring System for Primary Education.
Mobile Learning for Lifelong Learning

Early research in the design of mobile technologies for lifelong learning (Sharples, 2000) pointed to highly portable, individual, unobtrusive, available anywhere, adaptable to the learner's development, persistent, useful for everyday needs, and intuitive personal tools. The concept of Lifelong Learning dates back to long ago but everyday its importance is felt. Our society requires from us a certain versatility which is obtained from continuous updating of our professional skills and knowledge. Mobile Learning provides lifelong learners with a self-paced and personalized learning experience, making them become active learners in the learning process. Someone may be learning from his mobile device just before boarding on a plane or during a trip by bus. This will make them more knowledgeable in their field of study and better suited for their work.

Technologies involved in Mobile Learning

Nowadays mobile phones do not only support voice calls, they can receive data and faxes, send short messages (SMS), access WAP services, and provide full Internet access using technologies such as GPRS.

Nowadays, the latest mobile phones support Wireless technologies such as:
- Infrared
- Bluetooth
- 3G
- Wireless Application Protocol (WAP)
- WIFI.

Wireless technologies represent a rapidly emerging area of growth and importance for providing ubiquitous access to the network for all. Wireless networking refers to technology that enables two or more computers to communicate using standard network protocols, but without network cabling. There are three major technologies that best suit this communication. An overview of these three technologies is described below:
Table 2: Potential Wireless Technologies

<table>
<thead>
<tr>
<th>WAP</th>
<th>Wi-Fi</th>
<th>Bluetooth</th>
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<tbody>
<tr>
<td>Provides an environment in which to develop and execute applications and services for portable and wireless devices. Includes a microbrowser, a markup language interface, and Push technology to transmit data to applications residing on clients, plus multimedia message capabilities and content formats. Wireless Application Protocol (WAP), or WAP 2.0 is next generation of the WAP specification which deliver a richer and more secure experience to mobile Internet services and even printers</td>
<td>The acronym for ‘wireless fidelity’, a wireless networking 802.11-standard Wi-Fi network can also be used to enable connectivity to a larger local area network (LAN), wide area network (WAN), or the Internet. Wi-Fi was previously designed for mobile computing devices such as Laptops, but now, due to the great demand of this technology, is being increasingly used for more services in diverse areas</td>
<td>Bluetooth, also known as IEEE 802.15.1 is a radio and communication protocol which provides a way to connect and share data among many devices. This technology was developed by Eriksson and was later formalised by the Bluetooth Special Interest Group. Nearly all mobile phones use Class 2 which is 10 meter in range</td>
</tr>
</tbody>
</table>

**Wireless Technologies Comparison**

Numerous wireless technologies are available for the development of the smart mobile restaurant ordering system. So, these technologies need to be compared so as to be able to choose the most appropriate technology depending on the requirement of the system.

Table 3: Wireless Technologies Comparison

<table>
<thead>
<tr>
<th></th>
<th>WAP</th>
<th>Bluetooth</th>
<th>Wi-Fi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range(metres)</td>
<td>Worldwide</td>
<td>10m</td>
<td>100m</td>
</tr>
<tr>
<td>Frequency Range</td>
<td>1000-Mbit/s (Gigabit Ethernet)</td>
<td>2.4GHz</td>
<td>2.4GHz</td>
</tr>
<tr>
<td>Transmit Range</td>
<td>54Mbps</td>
<td>1Mbps</td>
<td>~10Mbps</td>
</tr>
<tr>
<td>Power</td>
<td>high</td>
<td>1/5 of Wi-Fi</td>
<td>high</td>
</tr>
<tr>
<td>Penetration</td>
<td>Penetrate objects</td>
<td>Penetrate objects</td>
<td>Penetrates objects</td>
</tr>
<tr>
<td>Line of Sight</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Not Required</td>
</tr>
<tr>
<td>Cost</td>
<td>cheap</td>
<td>Cheap</td>
<td>Expensive</td>
</tr>
</tbody>
</table>
Importance of Multimedia in Mobile Learning

Multimedia includes a combination of text, audio, still images, animation, video, and interactivity content forms. Surveys conducted with university students show that they own mobile phones that have multimedia and connectivity capabilities in increasing numbers (Cook et al. 2006). Harnessing the use of these devices for multimedia learning resources which are known to engage and motivate students could be a powerful way of providing learning materials to students who need more flexible learning solutions because of other time demands in their life (Boyle 1997).

The usefulness of Multimedia in the process of learning is immense. Students at time tend to get bored with text and with the use of multimedia; the learning process becomes much more interesting. Mobiles, smart phones, Personal Digital Assistants (PDAs), tablet PCs, iPods and iPads are becoming increasingly powerful and better suited for multimedia. These devices can have color rich animations, detailed graphics and high quality video and audio. Some of these mobiles are equipped with a lightweight version of Internet Explorer called Pocket Internet Explorer (PIE) which makes access to the Internet even easier. They are also equipped with a version of Windows Operating System for mobiles called Windows CE and other software such as Flash Lite, Windows Media Player, Audible just to name a few. All these features of mobile phones can make the user have a pleasant mobile learning experience.

Mobile Learning at the University of Mauritius

The system consists of the development of a WAP mobile learning system for the University of Mauritius where students can access the system through their mobile phone. The system will be developed by using WAP (web development technologies) for mobile phones such as Wireless Markup Language (WML), which is a markup language intended for devices that implement the Wireless Application Protocol (WAP) specification, such as mobile phones.
WML (Wireless Markup Language) is the first markup language standard for wireless devices. It is supported by all the major mobile phone manufacturers. The role of WML in mobile Internet applications is the same as that of HTML in web applications. WAP sites are written in WML, while web sites are written in HTML.

The system will provide free registration for University of Mauritius students, when registering; students will be required to write a Username and password. Then they will make use of this username and password to gain access to the Mobile Learning System.

The system will also provide students the facility to:

1. Retrieve their module materials from their mobile phone.

![Fig 3: Retrieve Module Materials](image)

2. View modules timetable in their mobile

![Fig 4: View Module Time Tables](image)
3. Enroll for a particular module

Fig 5: Enrolling for a particular module

4. Send module feedback
There will also be the administration part where educators can upload their notes for the students and make required update and place notices on the server.

**Some Advantages offered by Mobile Learning**

Perhaps the greatest advantage that can be derived from Mobile Learning is the notion of mobility that it brings. Learners can be accessing their learning materials at anytime from anywhere. Workers on the job can use mobile learning to access training materials when they need just-in-time training.
Learning from mobile devices can fill-up empty moments. Learners waiting at the airport can be possibly carrying out activities that will help them in knowledge construction. Here the constructivist theories of learning are privileged. Learners are able to study at their own pace and knowledge that they are acquiring from mobile learning can be consolidated through exercises, quizzes and activities.

Mobile Learning also encourages learners to build a community of practice. The term community of practice was coined by Etienne Wenger (Wenger & Snyder, 2000). It describes an informal network or group of people who exchange tips, best practices, and solutions to real problems. Using wireless devices, a community of practice can contribute to a forum or a discussion and answers required can be retrieved from anywhere. Perhaps this can form some kind of support that can be developed amongst a particular community of practice.

Mobile phones allow the use of rich media where available. This makes the learning process much more interesting. Furthermore the actual generation of learners has a fascination for mobile devices and learning from them can represent much of a psychological factor, increasing student motivation, commitment and self-esteem.

**Constraints**

Mobile Learning however presents certain constraints. Mobile devices very often have limited screen size, processing power, storage and battery power. Furthermore very often learners have to be hunched over the small screen of the mobile device for mobile learning. Most websites have been designed for larger traditional PC-based web viewing and when transposed to mobile devices, the layout of the website may be distorted. Downloading large image size can also be problematic and eventually it is advisable that new web pages specifically designed for mobile devices are created in case they have to be used for mobile learning. Price and cost can also hinder mobile learning from really taking off. The price of the mobile device, paying for the wireless service and maintenance and repair are non-negligible in terms of costs. Another constraint is security issues associated with the use of mobile devices for mobile learning. Mobile devices being light and small in size are more prone to theft. Data security on mobile devices is an important consideration. In a Computer World article, Muir (2003) estimates that “probably fewer than 10 percent of mobile devices used by major organizations have serious protection for stored data.

**Further Discussions on Mobile Learning**
Conclusion

It can be fair to say that Mobile Learning appears as challenging but not impossible. Mobile Learning can most effectively be used as blended learning at Colleges and Universities. Here students will be called upon to become more active learners through activities, exercises and quizzes being worked out from their mobile devices, thereby adopting a more constructivist way of learning. On the other hand, for lifelong learners and for people seeking knowledge that would be helpful for their everyday life, we can say that mobile learning provides just-in-time learning and fills up empty moments and prevents ‘wastage of time’, and at the same time builds on knowledge. We can say that m-Learning is definitely reality though still in its infancy stages. However as technology evolves, most barriers that are hindering its progress will gradually disappear and learners will be able to exploit the full benefits of mobile learning.
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Ubiquitous Project Management Using Interactive Virtual 3D Worlds

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Abstract
Globalization needs Collaboration. In a multi-national setting traditional issues of collaboration are exacerbate because of language and culture. This problem is particularly felt by small and medium-sized companies (SMEs) companies, which are traditionally not “natural born globals”. For example in Germany, which is dominated by SMEs, experience skill shortages as a result of demographic changes and a declining amount of students in engineering and informatics disciplines are becoming a major challenge. To investigate this situation, develop, and implement solutions, the research project “InterComp SME 2.0” was created. We present IT-supported models and knowledge management methods to improve the training lifecycle of multi-national SMEs using interactive virtual 3-dimensional worlds such as Second Life. We focus on the case of an already globalized, medium-sized German publishing software firm. Existing training offers are modeled using business process management methods and modularised to improve execution and learning in an intercultural setting. Additional support for our approach is provided by our recent teaching experiences in a practice supervision course at the Berlin School of Economics and Law. Like project management team members, the students were distributed across different countries with all sessions taking place in a virtual world, with additional support by a learning management system (Moodle) and blogging software (WordPress).

Keywords: multi-national, collaboration, project management, SME, Second Life

Introduction
In the past the traditional course of studies was a good foundation for an entire working life. Today, every employee must regularly and frequently refresh his or her qualifications in order to be up-to-date. In addition to the latest technology skills, applicable knowledge in a globalized world requires the competence to manage projects all over the world dealing with different cultures. Germany, whose economical success is fueled by a highly skilled work force, is beginning to experience the need for lifelong learning and on-the-job training. Not developing in these areas will severely hamper Germany’s competitiveness. Even for small and medium-sized companies, continuing education is one of the most important conditions for innovation and success. If you would ask a manager of an SME with international operations, you would most likely hear, that (s) he knows about the need for continuous training and education. They are conscious of the importance of knowledge acquisition and open minded
towards learning in virtual communities (Habermann, 2005). Ubiquitous Learning is possible today by means of e-learning technologies, but benefit, quality and economic sustainability are central criteria for the company’s decision to invest in it (Breitner, 2010). Companies want to directly see how e-learning tools pay off - without having to become experts in rapidly changing technologies. The integration of e-learning in the management process is one of the main levers to turn this technology into business operations (Schloesser, 2010).

Together with its science and business partners, the Berlin School of Economics and Law (BSEL) have recently begun a corporate research project in the field of E-Learning. Funded by the Germany Ministry of Education and Research, the project InterComp SME 2.0 is focusing on the development of modularized training offers for SMEs at the interface of information technology and culture (Birkenkrahe, 2009). Just as most lecturers still use PowerPoint presentations as the main tool of electronic delivery, most companies still limit their training presentations to PowerPoint slides. In this paper, we are investigating the case of a medium-sized, global software development firm serving the publishing industry, whose training methods are largely based on sharing several hundred slides with its clients during a two-day face-to-face course at the end of the software product implementation project. Both clients and trainers emerge exhausted and demotivated from the training. Though the clients are also trained using a test system of the software to be deployed, both clients and Software Company is aware that the training process could be hugely improved.

In this context, the software company is interested firstly in (a) increasing the number of trainings at a distance, and (b) making the face-to-face training sessions more effective.

To be more precise, the following main goals for training optimization have been agreed among the business partner and our research team.

To move
- from PowerPoint to modern tools of delivery;
- from high to low individual preparation effort per training unit;
- from functional to process descriptions;
- from two languages manual to multi-language delivery;
- from training without evaluation and continuous learning performance management.

We base this paper on our findings gained during the first phase of our systemic action research applied to face-to-face training on specific software implementation training. To get an overview of the training lifecycle, we analyzed an exemplary training setting. For any business software vendor, the complexity of the business software product results in intensive training for the end-user (i.e. the employees of the corporate customer). In our research case, the specific software module deals with the complex subject of managing “Contracts, Rights and Royalties” (CR&R). This CR&R module is part of an even more complex enterprise resource planning (ERP) suite, which supports all business processes of a publishing company. When implementing the business software, fruitful training of key users is one of the main success criteria for system acceptance and productivity. Unfortunately, because of release changes and frequent upgrades, traditional training material in the form of PowerPoint slides becomes quickly outdated, inconsistent, and redundant. The material then falls into disarray or must be re-engineered by individuals at high personal cost, leading to additional loss of energy and quality of the training.
Support for our direction of investigation - optimizing face-to-face training by combining means of e-learning methods and methodology - comes, perhaps not unexpectedly, from academic teaching: at BSEL, one of Germany’s largest business schools, we have recently begun to teach courses full-time in a virtual classroom located in the virtual 3D world of Second Life. These courses were supported also by an open source learning management system (Moodle) and by open source blogging software (WordPress). All three of these are the most widespread tools in their respective fields, and all three belong to an e-learning portfolio that’s easily in reach of any SME. For our initial enquiry, we were interested only in the virtual reality part of the course taught at BSEL - partly because the use of learning management software and blogs has already been fairly well researched, while the use of virtual worlds in project management and company training has not. Our specific research questions were thus:

1. What are the key challenges of face-to-face training as part of a multinational software implementation project?
2. Which lessons from teaching in interactive virtual 3D environments can be transferred to company training?
3. Can virtual 3D worlds be used to improve learning in international project management settings and deliver ubiquitous learning?

In the remainder of the paper, we present first research results in the context of questions (1) and (2), accompanied by a status analysis and give a preliminary answer to question (3), which provides a direction for future research. Question (1) deals with the company training situation, question (2) with a practice supervision course, and (3) combines both perspectives. Fig. 1 illustrates how these three aspects relate to one another, using “project management” as the highest level of abstraction of which the other two training situations are merely instantiations.

**Fig. 1. Overview Ubiquitous Project Management**
Methods

For the company training and for the practice supervision, we used two different methodologies adapted to the different circumstances and research questions.

Company Training

Within the large research setting of InterComp SME 2.0, we analyzed the training optimization using systemic action research (Brydon-Miller M., 2003) over a period of three months. To get an overview of how the training proceeds in a given setting, one of us (S.Q.) carried out a participant observation (Mayring, 2002) at a medium sized publishing house where the software company, a business partner of the research project InterComp SME 2.0 implemented their publishing software. A consultant of this software company executed the training. After this participant observation phase, a narrative interview (Cavana, 2001) with a group of international consultants who work with the software daily, followed. The interview in the form of a telephone conference, was carried out by two of us (S.Q. and B.H.) and was based on the first observation results. Interview participants received a half standardized interview guideline document in advance for preparation.

Practice Supervision

During the summer term 2010, we accompanied a practice supervision course of seventeen (17) graduate students in a Bachelors’ program “International Business Management”, who worked in different locations across Europe. The program is geared towards providing the students with more than the average amount of international experience. The course was taught by one of us (M.B.). Its point of presence consisted of weekly meetings in the virtual 3D world Second Life where BSEL occupies two islands for virtual teaching purposes (Birkenkrahe, 2010). The weekly meetings lasted 90 minutes each and took place over a period of eighteen (18) weeks. In addition, the students were asked to write weekly blog posts (using WordPress blogging software) to report on their experiences during the internship. Course materials, discussion forums and exercises, usually in the form of preparations for the virtual classroom sessions, were also made available online using a Moodle platform. While we already have experiences using blogs and learning platforms, this was the first course taught at the school using an interactive virtual 3d environment. The data presented and discussed in this paper were gathered by one of us (A.G.) as part of her dissertation, which was focused on developing marketing activities for virtual teaching (Gallo, 2010; Plagemann, 2010). The students were asked to fill in anonymous online surveys during the first and the last week of the course. Both surveys offered the opportunity for free responses as well.

Our investigation can be classified as Participatory Action Research (PAR) in the sense of Freire (Brydon-Miller, 2003), with a noted, explicit emphasis on the fact that both test persons and researcher were part of the same community and giving rise to an “action-reflection” sequence of research learning. For example, the course participants both in the SME and in the school were informed about the purpose and nature of the investigation before and kept informed during and after the research data were obtained.

Results

Because our research brings together two initially very different experimental situations - software training in an SME, and practice supervision in a business school - we will present the results from both of these in sequence before attempting an interpretation of the results in the light of improving project
management methods in the discussion section.

**Company Training**

We used (a) participant observation and (b) narrative interview to obtain our results in the case of the company training setting.

(a) To get an overview, how the training setting proceeds, we run a participant observation (Mayring, 2002) at a medium sized publishing house. The software company, which is part of the research project InterComp SME 2.0 implemented their publishing software at this client. A consultant of this software company, specialized in the software application, executed the training. Before the observation, the research team acquainted itself with the software content. For that, training material in the form of PowerPoint slides and manuals were provided by the software company. The goal of our observation was focused on the questions: How is the training environment? What atmosphere exists between consultant and user? How do they follow the setting? What main group reactions can be noticed?

The training setting was divided in two days. On the first day, a group of 6 female employees from the rights purchase department were trained. On the second day, 2 persons (1 male, 1 female) from the rights sales department got an introduction to the software. The training took place at a seminar room of the customer. All training members sat at a round table in this room. The consultant projected the software test on a screen. Two of the six members of the first training day brought their own laptop. Two researchers joined the groups on both days. They placed themselves at the end of the table and made observation notices. The initial situation was recalled by the consultant to the researcher: the training was the second training after a failed training a few weeks ago. The structure of the target group was identified as the main problem of the first training. The group members had different interests regarding the specifics of the new software system. During the training the consultant had to answer too detailed questions to one part of the group, which had on the other side no relevance for the second part of the group. Because of these discussions, the consultant offered to train the groups separately again at the customer.

After a short overview on the structure of the system, the consultant started to simulate processes at the test system. The consultant seemed to know the needs of the training members very well because of the previous training they had received by her. She encouraged the group to ask questions in between, if they don’t understand a task. Complex processes have been explained and demonstrated at a flip chart.

The main aspects of the final analysis were:
- good group/teacher atmosphere
- the consultant was very familiar with the internal processes
- the PowerPoint slides, which the business partner sent us as “training material” were not used in the training
- the handout was smaller than the handout we received from the business partner

(b) Our observation analysis provided the basis for the questions of the interview guideline, we sent to the interview member in advance. The following narrative interview (Cavana, 2001) took place with a wider range of consultants three weeks after the first impressions of the observation.
Relating to the first results, the goal of the second analysis was to get more detailed information about the complete training lifecycle. What steps does the consultant do at which part of the cycle, relevant for the training execution? Which aspects influence the preparation, execution and follow-up of the training? What are the most critical issues? What causes pain?
The narrative interview took place at a seminar room of the business partner. Three (3) researchers, one (1) project manager and one (1) consultant of the business partner sat at a round table. Three (3) international consultants were switched on in addition over the loudspeaker via a telephone conference. The interview was recorded digitally to analyze the details afterwards.

After a short introduction through the business partner’s project manager and one researcher, each consultant told in narrative form about his or her experience with training courses. The interview participants were well prepared because of the interview guideline, which has been emailed to everyone in advance. All aspects of the guideline have been discussed. In addition to the half structured guideline the interview was open enough for free, narrative stories and new aspects from the participant side.

The main aspects of the final interview results were:

- the preparation of the training of each consultant is very different
- the standard training material (PowerPoint slides & technical hand out) is rarely used in its original form
- there is a need for didactic and educational skills to handle different target groups, state of knowledge and characters
- the evaluation of the training is scheduled, but rarely executed
- the consultant is the reference person for any user question after the face-to-face training

The information of the participant observation and the narrative interview also delivered the necessary data for the following first process model. This model shows the training lifecycle as a process model (Scheer, 2000). The preparation, execution and the follow-up of the training are shared in three sections. Each section contains the technical systems which are used for the individual steps of the training process.
We want to focus on a few main statements of the interview relating the face-to-face training to compare the findings with the results from the virtual practice supervision course.

Fig. 4. The Training Lifecycle Process
Next to the question, how and in which way the training material and the handouts could be worked out differently, the main statements relating the face-to-face training are not content-based. It’s more psychological, didactical and pedagogical statements, which point out the clear position, that guidance in these areas would be appreciated.

**Practice Supervision**

The purpose of this course was to support the participants in their industry practice internships. To do this, a number of topical areas formed the basis of the curriculum, including skills like: communication with superiors, team members and customers; giving and getting feedback; presenting in front of a team; role playing conflict situations; analyzing conflicts, developing and implementing solutions in the work place.

Before the start of the course, each student was asked to register him- or herself independently in Second Life and create their own avatar. During virtual classroom sessions, the student would be present via his or her avatar.

In their internships, the students worked mostly in projects, usually in the position of the inexperienced team member (though there were a few exceptions). In the course of their internships, which would typically last six months, they experienced a number of issues that we’ve already mentioned above, and that are typical for project management group issues. The following story was shared by one of the participants and shows the level and character of problems:

“My team leader told me to create an Intranet page on a special topic. For the content, I needed to contact the member of another department. When I approached him, he insulted me for no apparent reason and made it impossible to work with him. Afterwards, I talked to one of my team mates, who told me that this guy was known for his irrational behavior and his bad social competence. I wish someone had (a) warned and talked openly to me and (b) that I knew how to behave in such a situation.”

This is not unlike situations in project management at large, because whoever works in a project team, usually relies on other
people’s information and collaboration. The issues of open information sharing and conflict resolution are also touched upon by this short example. It is even relevant to the company training situation above, because there are no boilerplate, standard solutions: nobody could tell this person what to do or not to do without closer examination of the people involved and the prevalent local workplace culture. At the same time, having a model of process, or even a process plan, to work from, or to work through, will certainly be an advantage.

The various interventions carried out with the course participants were all geared towards helping them manage situations like the one described. Figure 6 below shows a screenshot from a virtual classroom session where one of these interventions, or tools, was used: role play. The picture shows also a number of other supporting tools which were all brought into play in order to ease immersion and make the virtual classroom look more like a real classroom (except with invariable weather conditions).

These tools included: a scheduling board connected to a public Google Calendar, a picture viewer (in the background), or (not visible) a shared media wall - a shared online workspace - where avatars can access any browser-based application, such as Google Docs, Etherpad, Slideshare etc. Using these tools, we effectively transported group work into the virtual space: during class hours, students (or rather, their avatars) would be distributed into group where they worked on texts, discussed, solved small problems and presented them afterward in the large group. Though the students were initially confused (not having had any previous 3D experience, they needed a learning period of about two weeks), they quickly adapted to using these tool as avatars.

Fig. 6, screenshot: Class meeting in the virtual classroom in Second Life: role play
They also realized the importance of having a portfolio of different methods at their hand to manage virtual communication. And they experienced firsthand that more and more of work life is carried out, not just supported, by virtual means. One student said:

“I think it can help to improve the communication skills because on the job most meetings will be virtual and it is nice to get an impression how it works and eventually what can go wrong.”

The figure also shows a small stage used for a role play (Blatner and Blatner, 1997). We mention the role play here because among the many different training methods that one can use in a real room, role play is beyond doubt one of the most complex involving representatives, improvisational and communication skills. At the same time, when the role play succeeds, it can be a superb intervention and training method.

In the real classroom, role play is often difficult because participants untrained in or unused to self expression, feel embarrassed. Interestingly, in two role play sessions carried out in the virtual world, we found that participants accept the play without difficulty and with great results: the resulting role play situations were lively, the discussion rich, with many more students engaged than in a standard teaching format.

Faced with the need to support participants of an internship supervision course, who were mostly engaged in project work, at a distance, we chose an interactive 3D virtual world environment to emulate a virtual classroom situation. In order to engage the participants and further their learning experience, the use of mixed media and multiple modes of communication were necessary and were seen as an important by the participants to reach the learning objectives. With regard to more complex group interactions, such as role plays and group work, we found that everything that we’d normally have done in a real classroom, worked in the virtual world as well. Role plays in particular worked better than in the real classroom, judging from the participants’ reactions (Gallo, 2010).

Regarding the teacher’s side, we found that effective virtual teaching does not require a totally different didactic approach: to engage the students, essentially the same methods can be used that any experienced teacher would use in the real classroom. To establish immersion, however, and to eliminate the frustration that comes from not being able to use, thorough training of the tools and training of the ability to operate the avatar, are absolutely necessary. Once immersion has set in, teacher and student, or team leader and team members, or trainer and trainees, will no longer feel many of the restrictions that they are used to expect from computer-supported training.

Another tool that we used has no equivalent to a real world tool: the so-called “opinionator” is a structure where avatars can “vote with their feet” by moving into the corner of the object that corresponds to a particular question - the result of the survey is then instantly visually displayed using colors (see Fig. 7). The opinionator was judged by the students as a very attractive means of giving and organizing feedback. It was used to close the sessions in the virtual world with a sample question related to the topic of the session. Often, the students would ask for additional questions to be able to “play” longer with the opinionator.
Discussion

The results from the participant observation and the narrative interview during the company training show that the consultants are very familiar with the internal processes of the publishing house they train and are well prepared to show the user the examples in the test system. The preparation of the training settings is very individual, the standard training material is rarely used.

We focus in this paper on the key issues of the face-to-face training: project management is executed by consultants who are not professional trainers - according to our data, they suffer from a lack of didactic training themselves. They feel that they’re less effective when the students experience confusion or conflict.

Another important finding is that the quality of the training depends a lot more on the character and culture of the target group than the initial brief suggests: e.g. in the CR&R system, someone who closes contracts and someone who deals with accounting requires such different things from the system that it is not advised/practical to train these groups together: it follows that it may be necessary to also take these cultural differences and expectations into account when (a) creating course materials and (b) delivering. Our preliminary results suggest that a systematic approach to these issues could significantly enhance the value of the training.

Our second part of our findings during the practice supervision was meant to test our assumption that most of the group processes used in a systematic way during real classroom sessions (such as group work, role play, discussion etc.) could be transferred to an interactive 3D virtual world. We found this assumption to be true under certain conditions: immersion and interactivity. This is in line with observations made by others.
(Love et al, 2009; Richardson et al, 2010). To achieve immersion, students need to be trained properly in the new virtual environment. Immersion is both cause and effect: by learning to use their avatar as an extension of themselves, they are further immersed, and by being more immersed, they can make better use of the virtual environment for learning. We’ve found that it is beneficial to offer the students a number of different modes of learning and group communication. In connection with the company training, where building an atmosphere throughout the training seems to be an important part of the training success, we note that it is easier to build such an atmosphere from scratch, and to control it, in a virtual world (Bartle, 2003).

Overall, we confirm that good learning follows a learning cycle - one prominent example of such a cycle, the “Experiential Learning Cycle”, has been propose long ago by Kolb (Kolb, 1984; Kolb et al, 1999, see Fig. 8). It bears similarities to the training lifecycle but is more general and focused on the individual or the group, not on a particular product or process.

Interestingly, this cycle can also form the basis for an explanation of what we observed in the Practice Supervision situation around the onset of participant immersion: the creation of the avatar and its first steps include the “feeling” phase. Virtual classroom activities allow “seeing” and “thinking” even in a group. Finally, a multitude of e-learning tool, accessible to the avatars inside the virtual world allow to create an interactive environment for the students, which is considered one of the key issues for online and especially 3D learning (Kapp and O’Driscoll, 2010).
Conclusions

We have identified the key challenges of face-to-face training as part of a multi-national software implementation process: the training process, beginning from the preparation over the training itself until the rework is influenced by various factors. The personality of the trainer, the individuality of each target group of the training has to be taken into account. Different cultures need a consideration on intercultural aspects while preparing each training. The software is implemented in different countries and the user group of each country has its own specification. Another part of our research project focuses specifically on how to overcome the intercultural aspects. The training process model will be worked out more in detail to get an overview of the training workflow. A meta-model will ensure the transferability to other SMEs. The different technical systems in the training lifecycle (Content Management System, Software Test System, Software Programs like PowerPoint, Word, etc.) which are used by the consultants at each section of the training lifecycle will be reviewed to find out, how they use it and which improvements could maybe done. The lessons learnt from teaching in interactive virtual 3D environments confirm the necessity to vary multimedia and suggest that it would be possible to approach “ubiquity” of training in the context of projects by using virtual 3D worlds for teaching and learning purposes. We have identified the need for these environments to offer interactivity and immersion - two requirements that are also relevant in the company training context. In our future research, we will move from analysis into the creation of process models and into experimenting with 3D virtual world training settings.
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Instructor and Student Attitudes towards e-Learning Systems

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Abstract
The role of Information and Communication Technology (ICT) is increasingly visible and has many applications in our routines. One such application that currently has profound impact is e-learning systems. The growing potential of online educational systems and their robust utilities are leading to a re-examination of conventional teaching-learning systems all around the world. In this context, this study inquires into learners’ and instructor’s attitudes towards e-learning systems in a conventional teaching-learning environment, focusing on a few institutes of higher education operating under the approval of the UAE’s Ministry of Higher Education. Based on the survey data generated from 66 instructors and 96 students of various UAE based institutions, there is a high level of willingness to adopt e-learning systems in conventional teaching-learning environments like colleges and universities. High levels of association founded between the perceived quality of e-learning systems and their adoptability in the conventional teaching learning environments in the UAE. Thus, this study opens up an avenue for discussing the implications and possible adoption of e-learning systems in the conventional teaching-learning setting currently employed in the UAE.

Keywords: Instructor attitudes; Student attitudes; and e-Learning System

Introduction
The new millennium has emphasized the vital role of information technology and telecommunications in business development. The past decade has witnessed spectacular improvements in the computational capabilities of calculators and computers and, more recently, thrilling advances in their communication capabilities. The marriage of these two functions—computation and communication—has produced powerful information technology tools that have important implications for education. IT, and within this broader designation, its educational, instructional, and learning technology applications, facilitate collaboration, interactive learning, and new pedagogical approaches that can lead to changes in the way student and faculty interact. The rapid pace of change in information technology increasingly impacts the creation, publication, and dissemination of educational materials. Regardless of the rapidity or direction of change offered by revolutionary new technologies, the true challenge for developing guiding principles for their appropriate implementation lies in the involvement of all students at all types of academic institutions, with secure and
tangible links to the public and private sectors. Personal attitudes are a major factor in individual use of information technology, so understanding users’ attitudes toward electronic learning facilitates the creation of appropriate electronic learning environments for teaching and learning as in new technology. However, methods of assessing electronic learning may be hard to evaluate using a single linear methodology, so there is a need to build a multidisciplinary approach in order to survey individual attitudes toward electronic learning (Liaw, 2000; Liaw, in press; Wang, 2003). The measurement of e-learning systems must incorporate different aspects of user perceptions to form a useful diagnostic instrument (Wang, 2003). In addition, from the point of view of Liaw (2000), constructing user attitudes toward computer and Internet technologies can be divided into three major kinds of measurements: affective, cognitive, and behavioral. Affective measurements (such as perceived enjoyment) and cognitive measurements (such as perceived usefulness) have a positive effect on behavioral measurements, such as the intention to use e-learning as a teaching or learning tool (Liaw & Huang, 2003). Thus, the objectives taken up for the study are:

1. To determine the willingness of instructor to adopt e-learning tools
2. To analyze the impact of instructor’s cognitive factors, affective factors, and the perceived quality of e-learning systems on their willingness to use such systems
3. To determine the relationship between the instructor’s willingness (to act gladly) to use e-learning systems and their perception of the quality of such systems
4. To measure student’s perception of the quality of e-learning tools
5. To define the student’s preferences for assisted instructor tools in e-learning systems
6. To define the student preferences for multimedia tools in e-learning systems

**Literature Review**

E-learning is a term that most frequently is used for web-based distance education, with no face to face interaction. Electronic learning is a planned teaching/learning experience that uses a wide spectrum of technologies—mainly Internet or computer-based—to reach learners. In this paper, we concentrate on e-learning in terms of formal education content and initiatives, sometimes classified as the fifth generation of learning. In 1981, the Japanese announced a program of research on the fifth generation of computing systems (FGCS) that would integrate advances in the integration of database systems, artificial intelligence, and humans in a new range of computers that are closer to people in their communication and knowledge-processing capabilities (Gaines, 1984).

E-learning has been introduced at many universities and colleges as one strategy with which to transform teaching and learning. The appropriate use of information and communication technologies at many universities and colleges reflects a blended approach (technology-enabled approach) to teaching and learning, with asynchronous online communication tools, such as email or online discussion forums forming an essential part.

**Requirements for Effective e-Learning Initiatives.**

It has been widely accepted that e-learning requires interactivity to improve learners' skills and deliver results. Creating effective e-learning also requires some creativity and knowledge of basic design principles, but that is what makes it interesting, as the e-learning
process helps students understand, rather than to memorize, as in the traditional learning process. Research in cognitive science (Bransford, Brown, & Cocking, 2000) has shown that people remember better, longer, and in more detail if they understand, actively organize what they are learning, connect new knowledge to prior knowledge, and elaborate.

**Attitudes toward e-Learning**

Many institutions of higher education have turned to e-learning for authentic learning and to enhance learning performance, while other schools are jumping on the bandwagon simply because they do not want to be left behind. When instructors exhibit more positive attitudes toward e-learning, then they have more behavioral intentions to use it. Indeed, no matter how advanced or capable a technology, its effective implementation depends on users’ having a positive attitude toward it. Although the concept of attitude toward computers has gained recognition as a critical determinant in the use and acceptance of computer technology, there is no single, universally accepted definition of the computer attitude construct (Liaw, 2002; Smith et al., 2000). Previous research (Triandis, 1971) has suggested that attitude consists of affective, cognitive, and behavioral components: the affective component is the emotion or feeling, which includes statements of like or dislike toward certain objects; the cognitive component refers to statements of beliefs; and the behavioral component is what an individual actually does or intends to do (Liaw, 2002).

The three-tier technology use model (3TUM) is a conceptual approach for investigating user perceptions toward information and Internet technologies. The original concept of 3-TUM was derived from TAM (the Technology Acceptance Model), a popular approach for surveying user attitudes of information technologies (Davis, Bagozzi & Warsaw, 1989). TAM suggests that two specific behavioral beliefs, perceived ease of use (EOU) and perceived usefulness (U), determine an individual’s behavioral intention to use technologies. Based on the 3-TUM (Fig. 2), individual attitudes toward information technology form three different tiers: the tier of individual experience and system quality, the affective and cognitive tier, and the behavioral intention tier. The tier of individual experience and system quality evaluates how individual experience and system quality influence individual affective and cognitive components. The affective and cognitive tier investigates how affective and cognitive components change individual behavioral intentions. In the behavioral intention tier, the 3-TUM predicts individual behavioral intentions to use technology for a particular purpose (e.g., search engines as learning-assistance tools or computers).

![The three-tier use model (3-TUM)](Image)

**Research Hypotheses**

H1: Faculty members’ willingness to use e-learning systems does not depend on their perception of the quality of such systems,
supported by cognitive and affective aspects of using such systems.

**H2**: Faculty members’ willingness to use e-learning systems does not differ with their perception of the quality of such systems.

**H3**: Student’s perception of the quality of e-learning systems does not differ with their liking for the instructor assisting the learning in such systems.

**Research Methodology and Sampling Details**

The blueprint for executing this research was prepared in keeping with the nature of the problem identified and the objectives for the work. Hence, a descriptive research design with two separate questionnaires for the primary data collection was employed. The survey for this study was conducted in two major institutions of higher education in UAE. The valid sample size of survey respondents was 162, comprised of 96 students and 66 faculty members. The sample size of the faculty member represents more than 80 percent of the total population of the instructor employed in the educational institutions considered in the present study, while the sample size of the students represents 50 percent of the senior-batch students, who are on the verge of graduation in both the institutions. Further, due care was taken regarding the majors of the students who took part in the survey; the responses from the students who opted for an IT major were not considered in the final analysis in order to eliminate undue bias that may have arisen in the responses to the system considered. Thus, the sampling procedure adopted for this survey can be categorized under the judgment sampling method. The primary data pertaining to the present study was collected in March 2009.

**Questionnaire Development**

The questionnaire for this study was developed based on a survey of the literature and was adapted from previous research. Respondents expressed their feedback regarding effectiveness of e-learning courses or programs through a series of quantitative survey questions. Perceptions were gathered in the following areas:

- quality of e-learning
- e-learning efficiency and collaboration
- e-learning flexibility
- communication support
- e-learning pedagogic

**Training Evaluation Scale**

In order to reduce measurement error, the scale that accompanies each question on the attitudes and perception was designed and constructed appropriately, using the Likert scale. The issues to be addressed when constructing a Likert scale are the number of response options and the placement of response options. The Likert scale generally uses an odd-numbered, five-point scale with the following response alternatives: Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree, weighted 1, 2, 3, 4, and 5, respectively. The odd-numbered Likert scale allows for the adoption of a neutral point (3), which represents no expression of agreement/disagreement.

**Statistical Data Analysis**

Willingness to use e-learning systems classification
Table 3: Distribution of Instructor’s Willingness to Use e-learning Systems

<table>
<thead>
<tr>
<th>Level of Willingness</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>29</td>
<td>43.9</td>
<td>43.9</td>
<td>43.9</td>
</tr>
<tr>
<td>High</td>
<td>17</td>
<td>25.8</td>
<td>25.8</td>
<td>69.7</td>
</tr>
<tr>
<td>Very High</td>
<td>20</td>
<td>30.3</td>
<td>30.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>66</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows that more than half of the instructor indicated high or very high willingness to use e-learning systems, while less than half (44 percent) indicated a low willingness to use such systems.

Table 4: Results of Regression for the Test of Hypothesis 1

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Unstandardized Coefficients</th>
<th>Std. Error</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Adjusted R Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (Constant)</td>
<td>2.914</td>
<td>4.427</td>
<td></td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cognitive Measurement</td>
<td>0.835</td>
<td>0.475</td>
<td>0.596</td>
<td>1.760*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affective Measurement</td>
<td>0.190</td>
<td>0.735</td>
<td>0.084</td>
<td>0.259</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perceived quality</td>
<td>0.539</td>
<td>0.283</td>
<td>0.370</td>
<td>1.903*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at 5 percent level.
Dependent Variable: Willingness to use e-Learning Systems

Table 4, indicates that the F value of 12.89 is significant at the 5 percent level, which confirms that instructor’s willingness to use e-learning systems is strongly affected by factors like cognitive and affective measurements of the perceived quality of e-learning systems. Out of the above three influencing factors, the t value of 1.76 and 1.90 for cognitive measurements and perceived quality, respectively are significant at the 5 percent level. From the adjusted R square value, it can be confirmed that 63% of the willingness to use e-learning systems by the instructor is defined by three major factors: cognitive and affective factors and the perceived quality of e-learning systems. Based on these results, hypothesis-1 is rejected and greater likelihood is placed on instructor’s willingness to use e-learning system’s being dependent on factors like cognitive and affective measurements with perceived quality on such systems Instructor’s willingness to use classification vs. their perceived quality cross tabulation.
Table 5: Results of Cross-tabulation of Willingness To Use and Perceived Quality of e-learning Systems

<table>
<thead>
<tr>
<th>Willingness to use e-learning systems classification</th>
<th>Perceived quality of e-learning systems</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Low</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>High</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Very High</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>27</td>
</tr>
</tbody>
</table>

Pearson Chi-Square Value =47.867*  Degree of freedom = 4  N=66

*Significant at 5 percent level

Table 5 shows that the chi-square value of 47.87 with 4 degrees of freedom is significant at the 5 percent level. The cross-tabulation also shows that 45 percent of the instructors have high or very high willingness to use e-learning systems and high or very high perceived quality on e-learning systems. Based on these results, hypothesis 2 is rejected; there is an association between the instructor’s willingness to use e-learning systems and their perception of the quality of such systems.

Student’s perceived quality of learning e-learning tools vs. their liking for instructor assisted learning.

Table 6: Results of Cross-tabulation for Student’s Perceived Quality of e-learning Systems and Their Preference for Instructor-assisted Learning

<table>
<thead>
<tr>
<th>Perceived quality of learning with e-learning systems</th>
<th>Preference for instructor-assisted learning</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>High</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Very High</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>20</td>
</tr>
</tbody>
</table>

Pearson Chi-Square Value =34.867*  Degree of freedom = 4  N=96

*Significant at 5 percent level

Student’s preference for multimedia assisted learning systems.

Table 7: Distribution of Instructor’s Willingness to Use e-learning Systems

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>4</td>
<td>4.2</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>High</td>
<td>54</td>
<td>56.3</td>
<td>56.3</td>
<td>60.4</td>
</tr>
<tr>
<td>Very High</td>
<td>38</td>
<td>39.6</td>
<td>39.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 6 shows that the chi-square value of 34.87 with 4 degree of freedom is significant at 5 percent level and that 70 percent of the students have high or very high perceptions of the quality of e-learning systems, along with high and very high liking for instructor-assisted learning. Based on these results, hypothesis 3 is rejected and there is a strong
likelihood that there is an association between students’ perception of the quality of e-learning systems and their preference for instructor-assisted learning. More than 95 percent of the students indicated high or very high preferences for multimedia-assisted learning.

Research Findings

1. The instructor who participated in the present study showed high levels of willingness to adopt e-learning systems in their pedagogy. In this context, their willingness to adopt e-learning systems is strongly affected by three major factors: cognitive factors, affective factors and perceived quality. A significant level of dependency was also noted between the instructor’s willingness to adopt e-learning systems and their cognitive measurements and perception of the quality of such systems.

2. A significant level of association could be found between the Instructor’s willingness to use e-learning systems and their perception of the quality of such systems. More specifically, this kind of association exists among those who have higher levels of preference for instructor-assisted learning, so e-learning systems can be an excellent supplementary tool for conventional teaching pedagogy, although they may not totally replace more conventional methods of teaching and learning.

3. A significant level of association was found between the students’ preference for instructor-assisted learning and their perception of the quality of e-learning systems. More specifically, this kind of association exists among those students who have higher levels of preference for instructor-assisted learning, so e-learning systems can be an excellent supplementary tool for conventional teaching pedagogy, although they may not totally replace more conventional methods of teaching and learning.

4. Both the instructor and the student showed high levels of perceived quality of e-learning systems and willingness to use e-learning systems. In fact, e-learning systems have higher levels of operational acceptance with the student and instructor who have higher levels of perceived quality on such systems.

5. Less than 5 percent of students expressed a dislike of e-learning tools, while 95 percent accepted them.
Conclusion
Based on our findings, we see several implications of the study and can make several suggestions related to its findings. Educational institutions may adopt e-learning systems along with their conventional teaching learning systems to a greater degree than is currently the case. Since such systems have wide acceptance both from instructor and student, expanding e-learning opportunities may be a way to maintain higher levels of quality in the teaching-learning exercise. However, cost is an important factor to consider when implementing a new set of ideas or technologies.

Although many institutions are moving towards more e-learning, it should be given more emphasis. In particular, educational institutions should recruit instructors with high levels of ICT (Information and Communication Technology) ability in order to encourage an environment more conducive to the migration of the teaching-learning system in the direction of e-learning systems.

The high level of student acceptance of instructor-assisted learning confirms the importance of instructor in the teaching-learning environment as a whole. However, educational institutions should work toward finding the optimal mix of instructor-assisted and e-learning-based teaching-learning environments. Such an optimal mix will contribute significantly to maintaining quality in the institutes of higher education.

The instructor in various educational institutions should incorporate a greater mix of multimedia instruction in their pedagogy. Since there is resounding acceptance of the use of multimedia systems, from the student’s perspective, institutions should take steps to develop multimedia presentations that can enhance the quality of the teaching-learning environment as a whole. Such a mix also presents good business opportunities for software multimedia.

Educational institutions whose instructors have lower levels of ICT expertise should implement training on ICT for such instructors in order to enable them to face the challenges of the future, particularly as they related to increased use of e-learning-based systems.
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Computer Mediated Discussions in a Language Class

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Abstract
In this case study, the researchers conducted asynchronous and synchronous discussions in a lower six class of girls aged 17 years old, studying French language at a private secondary school. The students were subsequently interviewed about their experience with collaborative learning. They were probed as to their preferences to Internet pages and social networks, the frequency and duration that they spent online, and their online activities and previous experience in collaborative learning. The teachers of the French Department were also interviewed. The results show that computer-mediated discussions are rich tools for learning that students prefer to traditional classes. However, there are organizational and access problems to solve.

Keywords: Computer-mediated collaborative learning, asynchronous and synchronous discussion, social networks, language class

Introduction
This paper contains the following sections: background of the study, problem statement, research questions, literature review, methodology, findings and conclusion.

Background
Mauritius is an island with a land area of 60 by 40 miles, and a population of 1.2 million. The economy is growing steadily at an annual rate of 4 to 5 %. Electric energy and communication are available islandwide.

Viable educational research into the local practice especially in ICT education, is scarce. Often other political expediencies dictate policies. At present, the Government is willing to invest in more computers, some 20,000 notebooks for all lower VI students in 2011, interactive blackboards, etc. This study is appropriate to illuminate stakeholders about students’ practice online and the potential of the Internet and social networks in the teaching and learning environment.

Problem Statement
Traditionally, face to face chalk and talk teaching in the classroom setting has been the
norms with the teacher, as the source of knowledge, interacting with students, explaining, simplifying and the learners mostly sit and listen passively. Learners have little learning autonomy. The advent of ICT in teaching has changed traditional roles of a teacher to a facilitator or mentor, thereby changing their skills and pedagogy. The problem is that nowadays students spend a lot of time on the Internet and social networks and feel, like their teachers, that they can usefully tap into the Internet resources through collaborative learning and teaching, in particular, online discussions on prescribed topics in the curriculum, and effect deep learning. There is a felt need for change in order to maximize the potential benefits of technology in education. But there are many pedagogical, organizational, technical, administrative and leadership constraints.

Research Questions

1. What is the attitude of teachers and students towards communication on the Internet and social networks and in particular online discussions (ISNOD)?
2. What students do on ISNOD?
3. How could synchronous and asynchronous online discussions be used effectively in teaching and learning?

Literature Review

Hede, A. (2002) proposes an inclusive model for designing online multimedia learning, as shown below in Figure 1:
Multimedia input and learner style into the learner control can generate a process that involves attention, motivation, cognitive engagement into the working memory which, together with reflection and intelligence, produces long-term storage, and consequently deep learning although this model is desirable and comprehensive, we may not be able to implement all its features. Strategically we focus on collaborative learning, which is a process that consists of making students learn through interaction with other students. Students solve problems together through discussions, sharing ideas or results, and receiving feedback from others. The method develops supportive and positive relationship and classroom climate where the learners are the centre of learning. Vygotsky (1978) in Gokale (1995) states that “students are capable of performing at higher intellectual levels when asked to to work in collaborative situations than when asked to work individually.” Brandon (2004) stresses that a constructivist learning environment should provide a supportive and motivating environment in which learners can solve problems, interact with others, and assess their learning Chung Zhu etal., (2007). The peer communication leads to social constructivism which is strongly influenced by Vygotsky’s scaffolding, and suggests that knowledge is first created in a social context, and the use of technology helps learners to collaborate actively and constructively, in a reflective, intentional, contextual and conversational way with others (Jonassen (2001) in Chung Zhu etal. (2007). Social interaction allows collaborative opportunities which impact on their learning and affective development. Central to the psychology of Vygotsky and Feurstein is the concept of mediation. “The secret of effective learning lies in the nature of the social interaction two or more people with different level of skill and knowledge” (Williams and Burden (1997).

It is possible, through blended learning to mix different learning environments, such as face-to-face and computer-mediated instruction, to enhance teaching and learning. Mory (1992) in Forsyth (1996, 1998) states that “interaction is one of the higher order levels of feedback that behaviorists and cognitivists agree as important in the educational process.”

Online forums can be “engaging, vibrant and active” (Revill and Terrell (2005) in McNamara and Brown (2009) puts it. Guzdial and Turns (2000) in So (2008) state that “Participation is a design challenge that can be promoted through supported anchoring functions where topics worthy of discussion are easily visible and accessible to users.” Gokale (1995) stresses that “the development and enhancement of critical thinking skills through collaborative learning is one of the primary goals of technology education”

Online learning offers synchronous and asynchronous environments. In the synchronous mode, teachers and students can interact at the same time, which can improve “students’ attitudes and motivation”. Elluninate Inc. (2006) stated that it encourages learners to complete their work, assists in retention and helps them to achieve better in examinations. It provides immediate student-teacher feedback, reduces the feeling of isolation, provides a forum for collaboration, fosters a sense of community among learners, motivates and helps them structure their time. However, synchronous text-based chat does not offer the flexibility for students to make choices on immediacy of responses based on their preferences and surrounding situations.

Asynchronous mode is access anywhere and anytime. Students can read a message, reflect
upon it and respond when they are free to do so.

Both modes encourage open discussions and provide equal opportunities to students compare to the traditional classroom instructions. Sproull and Keissler (1993).

Methodology
This is a case study, involving teachers and students in the French Language Department, which is conducted in a private secondary school for girls. There are five teachers and three classes of Lower 6 girls aged 17 years. A pseudo-random sample of size 20 students is chosen as this is the class in which, Yannick one of the co-researchers, is teaching. It is a convenient sample because she is the only computer literate teacher in the French Department. The teacher gives precise instructions on procedure before the sessions and useful prompts to steer the discussions. First, the teachers in the French Department are interviewed to find out about their attitude, training needs, and willingness to use computer-mediated tools to teach, and some organizational constraints.

Secondly, the 20 students are invited to participate in asynchronous discussion for three days at home during a week-end during vacation, and in class during term time, respectively. The topic chosen comes from Paper 4 of the French Language syllabus 2010-2011 for Cambridge Higher School Certificate.

In the asynchronous discussions, there are two sessions o the prescribed themes: the relevance of mobile phone and marriage today. It is expected that the two sessions on the two themes will yield stable results. First, a clip of Michael Jackson on “saving the planet earth” is downloaded from Facebook and the students are asked to respond to the question. In the second session students use MSN (instant messaging) to chat and respond to the question and threaded discussions.

Finally, the students are responded to a questionnaire about their preferences, frequency and duration of their online activities. It is expected that the teachers’ survey will reveal their attitude towards integrating technology in their teaching, training needs and some organizational issues at school. Student’s survey results will reinforce the feedback about their synchronous and asynchronous experience in teaching and learning. Under a pilot study, a preliminary survey revealed that 5 students do not own a computer. The digital divide, as well as absences due to various reasons, impacted the synchronous sessions at home. Both questionnaires I for teachers and II for students are pre-tested and the feedback is used to improve the contents of the questionnaires.

We would like to know student’s preference in terms of Internet pages and social networks, and of their activities, frequency and duration of time spent online daily, their previous experience with online discussions, specifically in learning in class, and some issues underlining motivation and participation. The analysis of the interview with teachers, and the asynchronous and synchronous sessions are qualitative whereas the interview with the students are quantitative.

Findings
The results of the study are summarized below:

Interview of Teachers
The four teachers, excluding Yannick, are interviewed. It is interesting to know whether educators are making the most of ICT tools in their French classes and what were their views on the use of online applications, and
on boosting students’ interest in the new environment for learning.

All four teachers who are interviewed are not satisfied with their student’s interest, motivation and participation topic-wise in French Paper 3 in their respective traditional classes. Two teachers point out that students rely on spoon feeding.

All teachers agree that new learning strategies should be brought in the classroom to boost students’ interest. The use of Internet seems important for them not only for research purposes but also as a way of adding creativity to the classroom and making students appreciate what they are doing. According to one teacher, wherever possible, topics should be related to student’s personal lives.

Among the four teachers questioned, only one has already used an online tool especially for access to online press. Again only one teacher has used a social network like Facebook to share articles or videos on topics studied in class. The other teachers mentioned difficulties such as time constraints and no access to the computer laboratory.

There is indeed a serious problem of lack of participation in French classes. Teachers are using available and familiar learning strategies (debates, class presentation, group work) but these strategies do not seem to be working as they should be. However all educators agree that bringing ICT in the French class will bring innovation and boost students’ involvement as it will divert them from their usual learning routine. They stress on the fact that online discussions are very popular among students and that they will discover a new way of learning in an open environment which will give them access to different types of media. All teachers agree that internet tools and features like videos, chat and email should be used to boost up students’ participation and engagement in online discussions.

Educators’ positive responses show that they already know the impact of ICT tools on youngsters who are not only computer literate but at ease with online tools. Moreover, teachers mention that ICT tools will make learning an interesting activity.

**Asynchronous Discussion**

Students had the opportunity to watch the video which is a way of making them visualize how human beings are destroying the planet and to engage them in deeper analysis of the issue. Out of twenty participants, only ten could participate in the asynchronous discussion as they were on holidays or not at home during this activity in spite of their willingness to engage in the online discussion. The main problem which can be encountered when a discussion is organized outside school is time constraint as well as family constraint. When it comes to the discussion itself, some answers gave sometimes the impression that participants did not spend much time reading what others had posted before giving their point of view. One student started with “yes, it’s true...” which confirmed that she read what the preceding student wrote. However there was no argumentation; each participant seemed to be satisfied with what she had in mind. They started by explaining why human beings are doing so much harm to their environment. They mentioned brief causes which needed deeper reflection and relevant examples.
Moreover, many participants did not pay attention to the question although it had been used to focus their attention on a particular issue: “We are ALL responsible for the destruction on the planet earth.” “All we do is, destroy and nothing else”. A few participants responded to the prompt at the end of the discussion when the question was written again as a prompt: “We just destroy, then?”. Conversely, we have noticed a good participation from students who usually remain silent in a discussion in a traditional class. Even if their answers were short, they did their best to contribute and even replied twice or thrice at different times. The usually active participants in class developed their ideas and included examples in the asynchronous discussion which has been quite satisfactory for the first time. Owing to time constraint, it was decided not to pursue with another session of asynchronous discussion during vacation time and to carry on with synchronous discussions on MSN Messenger.

**Synchronous Discussion**

There are two in-class sessions, each on prescribed themes; marriage and mobile phone for 30 and 40 minutes respectively.

**Session 1: Marriage is out dated and obsolete. What do you think?**

Students’ participation in this discussion was good; they replied correctly to questions asked by the researcher by Yannick during the synchronous discussions. Responses were relevant, varied and students gave the impression of having a good knowledge of the subject matter even if it had not yet been discussed in class. Moreover they responded more precisely to prompts following the thread of the discussion and tried to argue or improve what had been said. Participants deviated from the subject only once to focus on the legitimacy of children born outside marriage but quickly responded to the teacher’s request to discuss on the relevant subject. It was interesting to note that even if several students were writing at the same time and that answers were posted one after the other, there was an effort to read others’ reactions and to argue. Participants gave the most of themselves in this activity which is contrary to the response we use to have during traditional class discussions. They were more responsive, motivated and showed great interest in the activity. The discussion was stopped at 9:06 but students still seemed to have something to say. Finally, it was a very positive and motivating experience for both the researchers and the participants who immediately responded positively for another synchronous discussion.

The second synchronous discussion started on Saturday 13 November at 8:19 pm with only eight participants who could join in; two of them could not log on as they had connection problems. The activity was ended around 8:56 pm. The same instructions were given to the group of participants.

**Session 2: The cellular phone is the source of many problems. Do you agree ?**

Although this question seemed to be an interesting one as youngsters use cellular phones a lot, students took more time to react. Participants started by beating around the bush; one girl mentioned “The cellular phone has also many advantages” without giving more details. However they responded to the prompt “First, let’s see the disadvantages” by giving possible reasons. Participants needed more time to read and to answer, and needs regular prompts to react than for the first synchronous discussion. The subject matter did not seem difficult but students needed more guidance. It was noted that in the two synchronous discussions student spent more time reading before answering. Surely, some topics are easier than others and maybe students have already discussed some issues among themselves as they did in the first
synchronous discussion. However they still gave fine answers and showed good critical thinking. Likewise, those who keep quiet in class during discussions involved themselves a lot during the interaction. It has also been noted that discussions were conducted in a friendly way and gave the impression that students were chatting about an important issue among themselves instead of tackling “serious” an essay topic. This is very positive and learning can be fun. When work is viewed this way it is more likely to produce good outcomes.

Finally, the asynchronous and synchronous discussions raised issues like time and family constraints and connection problems. These activities required good preparation beforehand and regular contacts through email to participants as we were on holidays and students could not be easily contacted. It would have been interesting to have an idea of the outcome of similar discussions in a classroom setting if we had more time. There is no doubt that this activity was a motivating one.

**Students’ attitude and use of ISNOD**

**Interview with students**

Twenty students, who were engaged in synchronous discussions, are subsequently interviewed about their preferences in terms of the order of access to internet pages, frequency, duration and activities online, previous and present collaboration experience, their ease or difficulty to communicate their preferences, motivation and willingness to participate in collaborative discussion.

Twenty percent accessed Facebook, 20 % MSN Messenger and 10 % Twitter as a fast choice: 20 % Youtube as second choice and 25 % Skype as a third choice.

Thirty five percent prefer these software tools for chatting, 25% sharing pictures, 20% participating in groups and 20% making friends.

All students enjoyed working with Facebook and MSN Messenger. Thirty five percent of the respondents found that discussion on the social network were more interesting than in the traditional class; 25% found the online activity was like a friendly discussion; 15% agreed that it was easier to discuss; 15 % found the activity more fun and 10 % liked this new way of learning. Consequently it is more appropriate to teach students with the new tools.

Students go online frequently. Ninety percent of the students go online everyday and 10% during week-ends. They usually spend time online as follows: 30% of the students spend less than 1 hour, 19% 1-2 hours, 19% 2-3 hours and 62% more than 3 hours per day.

All students agree that Internet is a useful tool in their studies.

All of them will engage in online discussion, and will do so even at night. Eighty percent of the students discuss online each time they log on to a social network; 10% chat during week-ends; 5% engaged in a discussion only when invited; and 5% do so only when they feel like it or when someone, whom they like to chat with is online. Consequently, these students will most likely accept a class discussion online.

Students have previous experience with collaborative learning. Last semester, 20% of the students stated that they engaged in synchronous collaborative learning and sharing in class 2 to 3 time, 45% 4 to 5 times and 25% 6 to 7 times. The classroom setting and time-table constraints do not allow teachers to conduct such lessons. (About 10
minutes are needed for students to prepare themselves or log on successfully before starting the class.)

Fifty percent of the students, found that the experience about collaborative learning was positive, 15% found it negative and 35 % were undecided. Usually those who participate and share their ideas and views actively find the activity easy but those who do not feel at ease to participate in class dislike this activity.

Table 1 below shows the percentage of students who experience ease or difficulties to communicate during the class secessions.

<table>
<thead>
<tr>
<th>Very Easy</th>
<th>Easy</th>
<th>Unsure</th>
<th>Difficult</th>
<th>Very Difficult</th>
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</thead>
<tbody>
<tr>
<td>25 %</td>
<td>30 %</td>
<td>25 %</td>
<td>20 %</td>
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</tbody>
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Fifty five percent found it very easy or easy to collaborate online as they felt happy doing this activity which gives them the opportunity to express themselves and discuss with their peers. They liked to learn in an active and creative way and do not need any encouragement from teachers. However, 25% of the students are unsure as they lag behind with activity in class because mainly they failed to express themselves fluently in French which discouraged participation as they felt uncomfortable. However, they might have the right answers. Finally, twenty percent of the students find it difficult to engage in collaborative learning, because of low self-esteem, what justifies the fear of being judged for wrong answers, bad pronunciation, etc.

Fifteen percent found that online collaboration brought more focus; 25 % has equal chances to participate and 30% were more at ease to give their opinion. (Shy students feel more confident to react) Of the remaining 30% of the students, 20% stated that they felt at ease in both setting and 10% agreed that each setting has its advantages. Students are motivated to engage in collaborative learning because 30% of the students found the environment friendly; 25% felt free to give their answers(shy students participated actively) ; 20% were more involved than in the classroom; 10% found the activity to be interesting and 10% enthusiastic.

Students pledge their participation to online discussion for the following reasons:
Table 1

<table>
<thead>
<tr>
<th>Reasons why online collaborative learning will be helpful in learning other subjects</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Networks are more interesting</td>
<td>35</td>
</tr>
<tr>
<td>I learn better this way</td>
<td>10</td>
</tr>
<tr>
<td>I will be more engaged in the lesson</td>
<td>25</td>
</tr>
<tr>
<td>I will do my best to participate</td>
<td>15</td>
</tr>
<tr>
<td>There is more exchange</td>
<td>0</td>
</tr>
<tr>
<td>Other applications like charts, videos, photos etc can be used</td>
<td>15</td>
</tr>
<tr>
<td>Learning is more dynamic this way</td>
<td>0</td>
</tr>
<tr>
<td>There will be more interaction</td>
<td>0</td>
</tr>
</tbody>
</table>

All the students stated that they would participate in class discussion if they would be conducted on social networks; the experience would help them to learn other subjects as well.
**Conclusion**

Ninety percent of the students go online daily and 62% spend more than 3 hours per session. Forty percent of the students access Facebook and MSN Messenger as first choice and Youtube as second choice. Thirty five percent of the students chat, share pictures, 20% participate in online discussions and 20% make friends. All students agree that the Internet is a useful tool in their studies. They will engage in online discussions, even at night. Shy students feel more confident to react. Generally students find it easier to participate and are motivated and engaged. Eighty percent of the students discuss online each time they log on to a social network, 10% chat during week-ends. Fifty five percent have three or more previous experiences in online collaborative learning. Fifty percent of the students found that it is easier to communicate online than in traditional classes. Consequently, students will more likely to accept online discussions.

**Answers to Research Questions**

Research questions were raised earlier and the study were carried out in on both teachers and students. The answers to the above questions are as follows:

**Attitude**

1. Students often spend a lot of their time online, chatting, sharing pictures, discussing with their peers and making new friends. They engaged in previous online collaborative learning; they found the present experience enriching and satisfying; and they are highly motivated and most are willing to participate in future compute-mediated instructions. Generally, students are more daring than teachers and they embrace technology naturally. The teachers (except the co-researchers) are mostly computer illiterate but are willing to embrace the new technology in their teaching, provided that they receive proper training. All teachers criticize the constraints, like time table, lower priority access to computer laboratory and leadership. Finally, twenty percent of the students found it difficult to engage in collaborative learning, because of low self-esteem, which justified the fear of being judged for wrong answers, bad pronunciation, etc.

Eighty percent of the students declared that it is easier to communicate online than in traditional class. In fact the virtual world helps slow persons a lot to engage in conversations, mostly with their peers. Students’ Sharing of ideas and knowledge in this particular setting has contributed a lot to students’ satisfaction. Amazingly no one mentioned that it was easier to discuss in the classroom setting. Consequently, these students will most likely accept a class discussion online. They need to think and speak rather than listen passively in a class. To be engaged, students must be active, physically and mentally. Those who participate and share their ideas and views actively find the activity easy but those who do not feel at ease to participate in class dislike this activity. In fact the virtual world helps slow persons a lot to engage in conversations, mostly with their peers.

2. In collaborative learning students interact with peers, discuss and share ideas or results and receive feedback. They share problems and difficulties while working together, building team spirit. Students build supportive and
positive classroom environment where the learner, and not the teacher, is the centre of the learning process. Learning becomes fun, more enjoyable. Students are capable of performing at higher intellectual levels. The diversity in terms of knowledge and experience contributes positively in the learning process. They can express themselves confidently in a small group, thereby enhancing self-esteem, developing communication skills and a high level of trust between peers, teachers and students. Their social interaction helps develop thinking skills, motivation and participation which involve the active engagement of student in the learning process.

However, some teachers and students do not have access to computers. This digital divide must be taken into account. Most computers are found within the computer laboratory and a few in the library at schools. Constraints due to access to technology and time table impede the implementation of technology because Computer Studies/ Computing students have priority access to the computer laboratory.

3. Recommendations
To implement ISNOD successfully, we need to satisfy students and teachers who prefer online collaborative teaching and learning to traditional classroom teaching.

To train teachers so that they feel confident with the technology that they are willing to adopt it and they need to have access to the technology at home to prepare lessons.

To iron out organizational constraints, e.g. rigid time-table, low priority access to the computer laboratory, inadequate administrative and technical and leadership.

The analysis confirms their appreciation of the discussion of the two topics in both synchronous and asynchronous modes. Well-prepared and monitored online activities can become successful ways to boost students’ participation, motivation and engagement which are lacking in traditional class. There is a need to extend Internet access to all students for all subjects rather than for those of Computer Studies only. Participation has been successful in both synchronous and asynchronous discussions.

Their social interaction helps develop thinking skills, motivation and participation which involve the active engagement of students in the learning process. Social interaction allows collaborative opportunities which impact on their learning and affective development.

This case study throws some light on the situation nation-wide.

**Reflection**

Technology alone will not transform successfully the teaching and learning process. Increasing technology use in schools requires teachers to be confident with it and hence teacher training, and teachers’ access to the technology. Organizational constraints including the time-table need to be ironed out. There is need for effective technical support, library facilities and supportive administration and leadership from the Rector and Ministry of Education and Human Resources.
The overall goal of education is not only the acquisition of knowledge but the whole development of the learner. Students learn better when they are actively involved individually and within their peer groups. They have different learning styles and preferences. The teacher strives to do his or her best to accommodate all students in his or her teaching. But this is hard to achieve in a class of usually 40 or more students. Nowadays, almost all students are computer literate. They prefer games, emails, Internet, cellular phones, iPad, computers and instant messaging which become an integrated part of their lives. There is a natural urge for people to connect. Could we use these to enhance learning? Of course, says the enterprise and creative teacher.

Undoubtedly technology will not replace teachers. Actually, they have found that blended learning, which refers to the mixing of different learning environments, offers the advantage of combining face-to-face with computer-mediated instructions. A teacher can begin his or her class and proceeds with online teaching materials, thus offering a window of rich multimedia or text-based pedagogical materials and creating interaction among them with higher levels of feedbacks that are important in the educational process as, Mory(1992) in Forsyth(1996,1998) puts it. The Minister of Education and Human Resource needs to exercise more clouts to bring more changes in the educational system, and brings leadership and vision to effect the necessary changes.
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Digital Learning Spaces: An Alternative to Traditional Learning Management System?

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Abstract

E-learning has been traditionally delivered using learning management systems (LMS). However, educators have become increasingly critical of current LMS. Costs have spiraled as LMS vendors add more and more tools that are often little used by educators. In addition, the pedagogy behind LMS affirms more traditional, teacher-centred models of learning. Moreover, the closed nature of LMS-delivered courses makes lifelong and informal learning more difficult. However, educators and students have started to use emerging web technologies, for example, social networking tools, RSS feeds and aggregation tools, to create personal teaching environments (PTEs) and personal learning environments (PLEs). These PTEs and PLEs are low-cost, easy to develop and manage, open in nature and encourage student-centred learning. They can be used within digital learning spaces (DLS) that can result in the creation of multiple learning connections. These DLS have the potential to replace traditional LMS.

Keywords: learning management systems, personal teaching environments, personal learning environments, digital learning spaces, web technologies

Introduction

Educational institutions have invested heavily in learning management systems (LMS) over the last decade. In particular, colleges and universities have purchased LMS to provide their students with online or blended-learning courses. Not only have the number of LMS installations increased, but the number of tools provided by LMS vendors and third parties have also increased. These tools allow faculty to manage their courses and to quickly publish course content. However, the provision of all these tools is not without some drawbacks. First, the sheer size of current LMS can be daunting to novice users; therefore, they tend to use only the most basic tools such as content delivery tools, assessments and discussion forums. In addition, the large size of current LMS has resulted in the cost increasing dramatically. To justify these costs, institutions expect, sometimes pressurize (Davidson and Waddington, 2010), their faculty to use LMS as much as possible. Another limitation of current, well-established LMS is the difficulty of integrating emerging web technologies. This, together with limited use of existing LMS tools, has resulted in LMS-based courses with similar look and functionality and restricted creativity (Savin-Baden, 2008). Educators, however, do not need to use these all-encompassing, inflexible and costly LMS. By using emerging web technologies as the building blocks, light-weight, low-cost (or free), personal teaching environments (PTEs) and personal learning environments (PLEs) can be built containing only the tools needed by educators and students to make online teaching and learning more creative.

This article discusses how one such PTE has been designed to deliver and manage an
online English course, how students have used PLEs to participate in the course and how the combination of the PTE and PLEs has resulted in a larger digital learning space (DLS). First, traditional LMS and their limitations are outlined. Then, PLEs, PTEs and DLS are discussed. Next, there is a detailed discussion on how a combination of web technologies has been used by both the teacher and students to create light-weight, low-cost and flexible PTEs and PLEs used during the delivery of an online English course. Finally, the DLS created by the connections among the participants in the course and between the participants and the course content is discussed.

Traditional LMS and their Limitations

In the 1990s, third-level institutions were faced with a variety of new challenges such as rising costs, reduced budgets, different student demographics and increased accountability (Brown 1998). The introduction of LMS in the early to mid-1990s seemed to be an answer to these challenges. The standardized interfaces and tools provided by LMS allowed flexible online delivery of learning materials and student support which “could be centrally managed, resourced and monitored” (Brown, 2010, p. 2). The result was that by the mid-2000s, LMS were ubiquitous on college campuses in both the US and the UK (Molenda and Bichelmayer, 2005; Wilson et al., 2007; Brown, 2010). However, this rapid introduction of LMS was perhaps driven more by administrative than by pedagogical needs, and, according to Mott (2010, n.p.), “several reports confirm that instructors overwhelmingly use content distribution and administrative tools in the LMS while using interactive tools only sparingly”. Consequently, having had time to view LMS more critically, educators have expressed concerns over limitations in performance and design features of traditional LMS (Siemens, 2006; Ionnou and Hanafin, 2008), particularly as emerging web technologies are forcing them to reconsider how learning and technology are combined.

But what are these limitations? Mott (2010) lists three. First, courses delivered using LMS are time-bound; once a course is finished, students are locked out. Second, courses are walled off from other courses and the wider web. Finally, LMS-based courses are teacher-centric; material is uploaded by the teacher and students’ contributions are restricted to uploading assignments, doing assessments and perhaps posting to discussion forums. These limitations have some serious consequences. For example, students have fewer opportunities for extended or lifelong learning; they cannot access valuable learning resources from previous courses or look ahead to future courses. In addition, students cannot share and collaborate with others outside their courses. These limitations negate the learning potential resulting from the network effect, i.e. the greater the number of participants in a network, the more possible connections exist (among participants and between participants and content), resulting in greater opportunities for learning (Bush and Mott, 2009).

Lane (2009) writes that the above limitations are caused by the inherent pedagogies of LMS. She believes that LMS were originally designed based on the traditional approach of presentation and assessment. The core or default tools that educators encounter are those that allow them to present content, assess learning and create discussion forums. Once these tools are mastered, educators, particularly those with limited IT skills, are often content with their use of LMS and fail to experiment with the more creative learning tools that are now being provided by LMS vendors and third parties. When used in this limited way, Arvan (2009, n.p.) believes that …
“the LMS serves as an affirming technology of traditional teaching. The instructor doesn’t challenge the LMS very much, and, in turn, the LMS doesn’t challenge the instructor. The student gets the convenience benefit from electronic distribution of documents (and grades) but little more.”

However, are there alternatives to expensive LMS that contain many tools, most of which educators don’t use and those that they do deliver learning in traditional, teacher-centric way? One possible solution is to use a combination of web technologies to build light-weight, low-cost personal teaching environments (PTEs) and personal learning environments (PLEs) that reside within larger digital learning spaces (DLS). These PTEs and PLEs contain only the tools needed by educators and students to make their online teaching and learning more effective. The DLS is created by the connections made among the participants and between the participants and the course content in these learning environments. These PTEs, PLEs and DLS are not time-bound or course-bound; instead, they can be used by participants to support their learning over an extended period of time.

Personal Learning Environments (PLEs), Personal Teaching Environments (PTEs) and Digital Learning Spaces (DLS)

Educators’ dissatisfaction with traditional enterprise-level LMS has resulted in a lot of interest in the area of personal learning environments (PLEs). It is hard to find an exact definition for PLEs. Godwin-Jones (2009, p. 3) describes a PLE as a “flexible and creative learning environment more in tune with today’s students through the use of (mostly) free tools that allow for a customized set of resources and services”. The resources, services and tools, generally consisting of emerging web technologies, are used by students in their daily lives. However, it is very important not to view a PLE as just a collection of software; it is more an approach to using technology for education (Attwell, 2007; Johnson and Liber, 2008). There is also a strong social element to a PLE. Wilson (2008, p. 18) describes a PLE as an “environment where people and tools and communities and resources interact in a very loose kind of way”. Finally, a PLE is able to support lifelong learning, informal learning and different individual styles of learning (Attwell, 2007).

However, there is some debate as to the level of “personalization” in a PLE (Johnson and Lieber, 2008). One view is that “personal learning” should be learner driven. All learning tools and resources are selected by the learner, not by a more traditional education provider. The other view is that the “personal learning” is learner-centred but that tools and resources are selected predominantly by the education provider. Severance et al.’s definition above is perhaps a combination of these two views. One answer to the debate might be for teachers to use personal teaching environments (PTEs) as part of larger digital learning spaces (DLS). In a PTE, the teacher is responsible for selecting most of the learning resources and tools that will be used on a course. However, as part of the course, learners are encouraged to use their own PLEs. Within these PLEs, students may use tools recommended by teachers or tools of their own choosing (provided these tools help students achieve the course goals). In addition, the PLEs are not restricted to just one course. They may have been used with previous courses, may be used with future
courses or could have been set up for personal study. Similarly, teachers’ PTEs could also be part of their wider PLEs. Hence, a huge educational digital learning space (DLS), or “open participatory learning ecosystem” (Seely Brown and Adler, 2008, n.p.) can be created. In this learning space, there is potential for teachers to become learners and for learners to become tutors and mentors (Banyard and Underwood, 2008). In addition, as the learning space expands, the number of connections among members and between members and content also expands, thereby increasing the number of learning opportunities.

In the remainder of the paper, I will discuss in detail how a combination of web technologies has been used to build light-weight, low-cost and flexible PTEs and PLEs within an online English course and demonstrate how the course content and members are part of a larger DLS.

The Course Overview

Having a background in TEFL (Teaching English as a Foreign Language), I had been thinking about creating a fully online English course for a number of years but the apparent difficulty and expense of doing this had deterred me. The main problem was how to manage the learning without resorting to an expensive LMS solution or hosting an open-source LMS on a server. However, with the rapid expansion of new, user-friendly web applications, it became evident that there were tools now available to develop pedagogically-sound online courses easily and very cost effectively. I decided to develop a twelve-week course, with two main objectives: 1) to enable the students’ English and computer skills to improve, and 2) to show that new web technologies could be used to successfully deliver and manage an online course. The course, web2english, was divided...
into eleven modules: an orientation module and ten learning modules. The orientation module was done in face-to-face mode to ensure that the students could master the tools needed for successful participation in the course. Five hours of instruction over one week was allocated for this module. The remaining modules were done in online mode (with a weekly face-to-face study morning for the students [the teacher was not present]), with the expectation that the students complete between seven and ten hours of study per module. Figure 2 below shows the course schedule.

Figure 2: web2english course schedule

**The Students**

Even though I work in an institute of higher education, it proved difficult to build a suitable digital learning space (DLS) with my students. The main reason was that my students were part of a large course that followed a set curriculum and most online learning activities were expected to be delivered through our LMS. Consequently, I decided to develop a DLS using a non-traditional group of students. Six volunteers were recruited from the family of faculty members and friends. These volunteers were housewives, ranging in age from thirty-five to fifty, from Korea (2), Japan, Thailand, China and Columbia. They were definitely not “digital natives” (Prensky, 2001, p. 1). When asked about their computer skills, four felt that their skills were normal, while two felt that they were very bad (in fact, two had not even used Microsoft Word). Their computer usage was low: four used it for less than five hours per week, one between five and ten hours and one between sixteen and twenty hours. They used computers predominantly for internet-related activities such as chatting and talking to family and friends, browsing and sending email, but some activity included watching videos, listening to music and uploading pictures and videos from cameras. When asked why they wanted to acquire more computer skills, it was interesting that five responded that they wanted to be able to learn more. This perhaps indicates that lifelong, informal learning are not just buzzwords – they are indeed an educational reality. (Note: See Appendix A for full results of the pre-course survey.)

Building the Digital Learning Space (DLS)
One of the main drawbacks of using an LMS is that the inherent pedagogy can restrict how educators design their learning activities. I didn’t want this to happen with the web2english course. The pedagogy and learning activities would dictate the delivery tools used, not the other way round. After deciding on the general course outline, the first thing that that was needed was a portal, or hub, for my personal teaching environment (PTE).

WordPress blog – the portal: The students would need access to three types of information: 1) weekly posts with detailed learning-module information, 2) pages to display general information such as the course outline, course schedule and assessment rubrics, and 3) links to resources and tools. Having had experience using WordPress for my personal blogs, I knew that it would be able to display the information listed above. The dynamic “home” page allowed for the weekly learning module posts to be added (with the most up to date on top) with links to all the learning activities (see figure 3 below for sample post).

![Figure 3: module posting, with links to learning activities, on the home page](image)

The blog also allowed static pages for general information to be added. These pages are opened using tabs at the top of the blog. The blog sidebars were also very useful. By embedding widgets in these sidebars, the students could easily access all the course tools, resources and their Twitter activity (see figures 4 and 5 below).
However, even though the course could be delivered using the blog, the students had little opportunity to interact with their classmates and teacher. Comments could be added to the module posts, but it would have been difficult to provide enough detail and interaction for all the activities within the one module. Therefore, another web tool, edmodo, was used to give more depth to each learning activity. Using edmodo would also provide another essential feature, a grade book.
edmodo – microblogging for educators: Using edmodo allowed the learning to be enhanced by providing a space for the teacher and the students to interact with each other and the course content. It also gave the students an opportunity to contribute to the learning. For example, warmer activities, such as polls and open-ended questions, were added before the main learning activities (see figures 7 and 8 below).

In addition, the students, when having difficulties, could send notes directly to the class or teacher. A notification immediately appeared on my computer via my Google email account and Google talk. Provided I was using my computer at the time, I could provide the student with almost instant feedback. Figure 9 below shows a good example of how a note has been used by a student to help someone and contribute to the learning environment in the process.
Two other essential features provided by edmodo were the assignment tool and the grade book. The assignment tool allowed the students to submit assignments and for the teacher to return grades and corrected copies of the assignments. These grades were automatically stored in the grade book. (See figures 10 and 11 below.)
Despite edmodo being a very useful teaching/learning tool, it has some drawbacks. Mott (2010) described one flaw of the LMS as being its closed nature: LMS-based courses are open only to registered students. Edmodo does give students a forum to interact and make learning connections, but participation is limited to course members, thereby negating the network effect. However, as privacy and security in education is still a major concern, there are times when restricting learning spaces is inevitable. Nevertheless, tools like edmodo do allow students some space to contribute and the basic version is free. Another drawback is that edmodo doesn’t have a tool for creating graded quizzes, an essential for most online courses. To solve this problem, another web tool, Classmarker, was used.
Classmarker - the quiz tool: The initial learning content in web2english followed a more traditional process, i.e. the students had to read and listen to web-based texts and then do online quizzes to test comprehension. Classmarker was used to design, deliver and manage these online quizzes. Despite a less than “funky” user interface, it was easy to design quizzes and navigate between classes, quizzes and results.

Having done the quizzes, the students then had to produce a written text based on the topic of the reading and listening activities just completed. This involved submitting a first draft, which was corrected and graded, then a second draft which was also graded and corrected if necessary. The drafts were done in Microsoft Word and submitted using the edmodo assignment tool. As can be seen, the learning up to this stage followed a more traditional present-discuss-assess model. To make the course more learner-centric and to increase the number of learning connections, it was necessary to use web tools that would encourage sharing and collaboration among the students and to provide a space for the students to display their work to a wider audience. For this, collaborative and social networking tools such as RSS feeds, netvibes, Blogger, MyPodcasts, Google Docs and Twitter were selected.

Tools for Sharing and Collaboration

RSS (really simple syndication) feeds and netvibes: Most websites and blogs now allow syndication of content by providing RSS feeds. These feeds allow web users to receive changing web content; instead of going to websites and blogs to see what’s new, RSS feeds allow the new content to be delivered to web users (whatisrss.com, n.d.). These RSS feeds can be added to web browsers, to RSS readers such as Google Reader, aggregation tools such as netvibes, or embedded in websites and blogs. Teachers can use them to quickly see any new work produced by their students. Similarly, students can use them to see if any new course material has been added. In the web2english course, RSS feeds were used to display the students’ twitter correspondence and new work added to their blogs and podcasts. Initially, the feeds to the students’ blogs and podcasts were on a static
blog page. However, later in the course, an aggregation tool, netvibes, was used to display all the feeds to the student work. Using netvibes has two advantages: 1) it made access to the students’ work easier, and 2) it exposed the students to an important type of learning tool, the aggregator.

Figure 13: The netvibes course page

**Blogger and MyPodcasts**

The results of students’ learning may often be very private, viewed only by their teachers. However, blogs and podcasts can make students’ learning more public. They allow students to build a portfolio of their work which can then be shared and commented on by their classmates or an even wider audience. In addition, by using blogs and podcasts, students can become producers, rather than just consumers, of learning content. In the web2english course, the students used a blogger.com blog to display their previously corrected written texts. As part of the course, their classmates were expected to read these texts and make a comment. Similarly, the students used MyPodcasts to publish audio versions of the texts. Their classmates listened to the podcasts and made comments accordingly. Figures 14 and 15 below show a blog post, a podcast and resulting comments.

Figure 14: blog post and comments
Twitter

Twitter is an example of a microblog. Whereas blogs and podcasts can give a picture of a person’s life or learning over time, microblogging is more concerned with what a person is doing at one particular moment in time, such as going to a concert, having a coffee with friends or attending a lecture, and the need to get this information out to an audience in real-time (Kanter, 2008). Twitter provides members with a forum to produce and display texts, called tweets, up to 140 characters in length. Being so short allows the tweets to be quickly written, sent and read on computers or mobile devices.
Communities can be set up within Twitter; these communities allow members to follow each other’s tweets. As these communities grow, the number of connections made between members can be huge.

In web2english, a Twitter community of seven members (six students and the teacher) was set up. The students were expected not only to produce general tweets but also reflections on their learning. Figures 18 and 19 below show examples of these types of tweets. The students could view each other’s tweets on Twitter or from the web2english blog.

The previous discussion has focused on how the web2english course was delivered and how the students participated in the course. However, unlike courses delivered by traditional LMS, the open nature of the web2english course allows it to become part of a larger digital learning space.

Web2english as part of a larger Digital Learning Space (DLS)

The web2english course contained two kinds of teaching/learning environments: a personal teaching environment (PTE) and personal learning environments (PLEs) [see figures 20 and 21 below]. The same tools were used in both; the main difference being that the students’ use of these tools for content creation was more limited than that of the teacher. (Note: Due to the students’ lack of familiarity with web tools, I selected the tools that they would use in their PLEs. But one of the key features of PLEs is that students have the freedom to select their own tools.) Taken in isolation, both the PTE and the PLEs were mechanisms, “tools, artefacts, processes and physical connections” (Couros, 2010, p. 125) for controlling and managing online teaching/learning. However, they were not used in isolation; they were part of a larger learning space in which connections exist among people and between people and content (Downes, 2010). It was these
connections that enhanced the learning process. Figures 22 and 23 below show how the PTE and PLEs are located within a larger digital learning space.

Figure 22: My PTE

Figure 21: Student PLE

Figure 22: the basic web2english digital learning space

Figure 22 depicts the learning connections that existed during the 12-week duration of the course. As mentioned previously, a large number of connections were created, but these were almost exclusively between the teacher and the students, among the students themselves and between the teacher/students and the course content. The content
production tools, twitter, blogger, MyPodcast and Google docs, did produce some connections with non-course members. Similarly, the WordPress portal also generated some additional connections. The students were also able to make connections with non-course members when using the British Council and elllo.org online learning resources; however, the connections consisted of reading non-course member comments rather than personally contributing to these external learning communities. I believe that the short duration of the web2english course and the lack of follow-up learning opportunities for the students resulted in fewer external learning connections being made. Had the students continued using the content creation tools as part of a longer learning process, the possibility of creating additional connections with other teachers, students and non-course members would have increased.

Figure 23: web2english in a broader digital learning space

Figure 23 above shows how a digital learning space, with web2english at the centre, may expand over time. Already, my experience delivering the course has led to connections being made with fellow educators through academic papers and conferences, entries to my personal WordPress blog and professional development courses that I have organized. Some of these educators have in turn looked at the work produced by the students. Ideally, the students would also continue using their content creation tools and learning resources to establish more learning connections.
Conclusion

I set out to achieve two goals with the web2english course. The first was to improve the students' English and computing skills. In a post-course survey (see Appendix B), all respondents (5 out of the 6 course members) either agreed strongly or agreed that both their English and computer skills had improved. It can be inferred from this that the second goal, to show that web technologies can be used to successfully deliver and manage an online course, was also achieved. It is also interesting to note that 80% of the students agreed strongly that learning online is a good way to learn. This is perhaps a reflection on the fact that the students were not part of a formal education system.

However, despite the course appearing to be a success, there are some issues that need to be addressed. First, none of the students had experienced learning within a traditional LMS, so were unable to compare LMS-based learning with web-based learning. Second, once the course was finished, the students stopped using the content-production tools, resulting in their PLEs becoming dormant. More longitudinal studies are needed to determine the quantity and quality of learning connections created within a DLS. Finally, and perhaps most importantly, to determine whether DLS can indeed be an alternative to traditional LMS, they need to be tested in more formal learning environments. And even if this testing shows that DLS can outperform current LMS, their adoption in formal education may meet with strong resistance. According to Sclater (2008), this resistance is a result of a number of factors, at both institutional and faculty levels. At an institutional level, supporting the wide range of tools used in PLEs and PTEs is problematic. For example, large administration tasks, such as student registration, would be very difficult over multiple systems. In addition, a major change in pedagogy would be necessary for successful implementation of DLS. Furthermore, there are concerns about the protection of core educational materials and the privacy of student work. At a faculty level, educators have already invested time and intellectual resources into developing courses on traditional LMS and may therefore be reluctant to change. Moreover, less technically literate faculty, who may have just become comfortable with LMS, may be reluctant to experiment with multiple tools as part of their teaching.

So can DLS be viable alternatives to traditional LMS? In non-formal educational environments, such as the learning environment in which web2english resided, DLS can indeed be very valuable educational resources. However, in formal educational environments, DLS will need to coexist with current LMS. This may result in traditional LMS becoming part of the DLS, similar to the role of edmodo in the web2english course, or LMS opening up to incorporate new emerging web applications. Whatever happens, web-based tools, PTEs, PLEs and DLS will have an ever important role to play in education.
References

Arvan, L. (2009). Dis-Integrating the LMS. *EDUCAUSE Quarterly Magazine*, 32 (2)


(477)


Appendix A: Pre-course survey results

1. Before the course, how good was your English?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>very good</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>good</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>normal</td>
<td>33.3%</td>
<td>2</td>
</tr>
<tr>
<td>bad</td>
<td>16.7%</td>
<td>1</td>
</tr>
<tr>
<td>very bad</td>
<td>50.0%</td>
<td>3</td>
</tr>
</tbody>
</table>

2. Why do you want to learn English?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>To get better at English to use outside the house</td>
<td>83.3%</td>
<td>5</td>
</tr>
<tr>
<td>To get better at English so I can help my children</td>
<td>66.7%</td>
<td>4</td>
</tr>
<tr>
<td>To meet people</td>
<td>50.0%</td>
<td>3</td>
</tr>
<tr>
<td>To communicate better with my husband</td>
<td>50.0%</td>
<td>3</td>
</tr>
<tr>
<td>To get a job</td>
<td>33.3%</td>
<td>2</td>
</tr>
</tbody>
</table>

3. What English do you want to learn on this course?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>how to speak better</td>
<td>66.7%</td>
<td>4</td>
</tr>
<tr>
<td>how to write better</td>
<td>83.3%</td>
<td>5</td>
</tr>
<tr>
<td>how to read better</td>
<td>66.7%</td>
<td>4</td>
</tr>
<tr>
<td>how to listen better</td>
<td>33.3%</td>
<td>2</td>
</tr>
<tr>
<td>how to use grammar properly</td>
<td>50.0%</td>
<td>3</td>
</tr>
</tbody>
</table>

4. Before the course, what were your computer skills like?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>very good</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>good</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>normal</td>
<td>66.7%</td>
<td>4</td>
</tr>
<tr>
<td>bad</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>very bad</td>
<td>33.3%</td>
<td>2</td>
</tr>
</tbody>
</table>

5. Before the course, how many hours a week did you use a computer?

<table>
<thead>
<tr>
<th>Hours</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>66.7%</td>
<td>4</td>
</tr>
<tr>
<td>6-10</td>
<td>16.7%</td>
<td>1</td>
</tr>
<tr>
<td>11-15</td>
<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>16-20</td>
<td>16.7%</td>
<td>1</td>
</tr>
<tr>
<td>20+</td>
<td>0%</td>
<td>0</td>
</tr>
</tbody>
</table>
### 6. Before the course, what did you use on the computer for?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>to chat with friends or family (using Messenger, etc.)</td>
<td>50.0%</td>
<td>3</td>
</tr>
<tr>
<td>to talk with friends or family (using Skype, etc.)</td>
<td>66.7%</td>
<td>4</td>
</tr>
<tr>
<td>to use the internet</td>
<td>66.7%</td>
<td>4</td>
</tr>
<tr>
<td>to send email</td>
<td>83.3%</td>
<td>5</td>
</tr>
<tr>
<td>to save photographs, videos, or music</td>
<td>33.3%</td>
<td>2</td>
</tr>
<tr>
<td>to use a word processor like Microsoft Word</td>
<td>16.7%</td>
<td>1</td>
</tr>
<tr>
<td>to study</td>
<td>33.3%</td>
<td>2</td>
</tr>
<tr>
<td>to listen to music or watch movies</td>
<td>50.0%</td>
<td>3</td>
</tr>
</tbody>
</table>

### 7. What do you want to learn computer skills?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>To help my children</td>
<td>50.0%</td>
<td>3</td>
</tr>
<tr>
<td>To be able to learn more</td>
<td>83.3%</td>
<td>5</td>
</tr>
<tr>
<td>To get a job later</td>
<td>16.7%</td>
<td>1</td>
</tr>
<tr>
<td>To get in touch with more people</td>
<td>16.7%</td>
<td>1</td>
</tr>
</tbody>
</table>
### Appendix B: Post-course survey results

10. Please answer these questions about web2english.

<table>
<thead>
<tr>
<th></th>
<th>Agree strongly</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Disagree strongly</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>web2english was easy to use.</td>
<td>60.0% (3)</td>
<td>20.0% (1)</td>
<td>20.0% (1)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>I had many problems using web2english.</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>20.0% (1)</td>
<td>40.0% (2)</td>
<td>40.0% (2)</td>
<td>5</td>
</tr>
<tr>
<td>web2english was interesting.</td>
<td>80.0% (4)</td>
<td>20.0% (1)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>web2english was fun.</td>
<td>80.0% (4)</td>
<td>20.0% (1)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>My reading skills got better.</td>
<td>60.0% (3)</td>
<td>40.0% (2)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>My writing skills got better.</td>
<td>40.0% (2)</td>
<td>60.0% (3)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>My listening skills got better.</td>
<td>60.0% (3)</td>
<td>40.0% (2)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>My speaking skills got better.</td>
<td>20.0% (1)</td>
<td>80.0% (4)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>My grammar got better.</td>
<td>20.0% (1)</td>
<td>80.0% (4)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>My computer skills got better</td>
<td>80.0% (4)</td>
<td>20.0% (1)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>I learned a lot of new words.</td>
<td>40.0% (2)</td>
<td>60.0% (3)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>I learned a lot from my friends.</td>
<td>40.0% (2)</td>
<td>60.0% (3)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>I learned a lot about the world and my friends' countries.</td>
<td>20.0% (1)</td>
<td>80.0% (4)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>The study mornings were a good learning opportunity.</td>
<td>60.0% (3)</td>
<td>40.0% (2)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>Learning online is a good way to learn.</td>
<td>80.0% (4)</td>
<td>20.0% (1)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
<tr>
<td>The teacher was very helpful.</td>
<td>50.0% (2)</td>
<td>50.0% (2)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>4</td>
</tr>
<tr>
<td>I would learn more if I met the teacher more often.</td>
<td>20.0% (1)</td>
<td>40.0% (2)</td>
<td>40.0% (2)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>5</td>
</tr>
</tbody>
</table>
تحديات جامعة القاهرة بين التعلم عن بعد و التعلم الإلكتروني في اللغة الإسبانية و أدابها مثالاً

RSAHAM MUDHIBOUDI
قسم اللغة الإسبانية و أدابها كلية الآداب- جامعة القاهرة

أولا: ملخص البحث:
هذا البحث عبارة عن دراسة وصفية تحليلية إحصائية مقارنة بين نظام التعلم عن بعد في القسم الإسباني الذي افتتح العام الدراسي (2009-2010) بمركز التعليم المفتوح، و بين نظام التعليم الإلكتروني المكمل للمنهج التقليدي في القسم الإسباني الذي يحتفل في العام نفسه بمرور 25 عاماً على إنشائه بكلية الآداب. و هذا النظام الأخير هو نتاج مجهودات متضافة من قبل فريق العمل- المصرى و الإسباني- في المشروع البحثي المشترك بين جامعة القاهرة و جامعة كوميونتسي، و هي الجامعة المركزية في مدريد. و عوان هذا المشروع "تصميم و تنفيذ برنامج تعلم إلكتروني تفاعلي، وفقاً لمعايير الجودة العالمية، لتعليم اللغة و الأدب و مهارات الاتصال و الثقافة الإسبانية للطلاب المصريين.

تهدف هذه الدراسة إلى التعريف بأخر استراتيجيات الإصلاح في هذين القسمين من تطوير أنماط التعلم الجامعي، و تهدف في الوقت ذاته إلى حصر المشاكل التي نواجهها في متطلبات التحديث، من قلة الموارد، و عدم النوعية الكافية لطلاب العلوم الإنسانية بأهمية استخدام التكنولوجيا في الحصول على المعرفة، وعدم الربط بين عملية إصلاح الجامعات و تحسين جودة الأداء الجامعي. ثم سنلقى الضوء على بعض سبل إنجاح دمج النظم التعليمية الحديثة في ظل واقعنا المصري و العربي. و أخيراً، نأمل أن مثل هذه المشاريع البحثية المشتركة تأخذ طريقها في الانتشار و الفائدة، في ظل أفاق جديدة للتعاون بين الجامعات العربية.

ثانياً: أسباب و ميقات البحث:
نشهد اليوم ثورة معلوماتية لا مثيل لها من قبل، تعتمد بشكل أساسي على الحاسوب كأداة جمع و تخزين و للمعلومات المتزايدة و المتغيرة يوماً بعد يوم. و الطفرة التكنولوجية ساعدت في تسخير هذه الأداة لنشر المعرفة بسرعة و بدقة مما أدى بلا شك إلى النهضة المعرفية التي نتمتع بها في العصر الحالي.
لكن هذه النهضة المعرفية لا يجب أن تكون مقصورة على فئة بعينها من الناس، بل يجب أن تكون عامة و متفرة للمجتمع بكل طبقاته، وأن تمثل نمطاً من أنماط الحياة الثقافية الحديثة. ويبدأ الإثارة لا يملأ مبدأ الحفاظ على الجودة و استمراريتها.

و المهمة الأساسية للمؤسسات التربوية والتعليمية هي إعداد المواطنين جميعا على السواء لاستقبال التغيرات الجديدة في مختلف العلوم، و لذلك يتطلب عليها، حفاظها على دورها الريادي، أن تجدد وتطرد باستمرار نظمها التعليمية والتعليمية. و من هنا ظهرت الحركة التنافسية المتصاعدة بين الجامعات الكبرى لتطوير طرق التدريس و التعلم، وأصبحت تهتم بمنظمة الطالب في الدراسة الأولى، و الغرض الأساسي و النهائي هو تخريج طالب يمتلك بأكبر قدر من المهارات العقلية والعاطفية والمعرفية، و يستطيع إثبات نفسه في مجالات العمل المختلفة و التي تغلب عليها أيضا روح المنافسة المستمرة.

و من هذا المنطلق عزمت جامعة القاهرة أن تعيد نفسها على الخريطة العالمية للجامعات المتقدمة ذات المكانة العلمية المتميزة. مما أدى إلى إنشاء "مركز ضمان الجودة و الاعتماد". الذي كان يسعى من قبل "مركز تقويم و تطوير الأداء الجامعي و الاعتماد" الذي انشئ في سنة 1999 و هو عبارة عن وحدة إدارية تابعة لمكتب رئيس الجامعة مباشرة. و يتضمن المركز وحدات لضمان الجودة بكليات و معاهد جامعة القاهرة. و تنص رسالة المركز على ما يلي:

"المساهمة في وضع جامعة القاهرة على الخريطة العالمية للأعمال المتقدمة ذات القيمة العالمية المتميزة، بما يضمن الاعتراف الدولي بها، و بحيث تكون قادرة على إنتاج خريج متميز قادر على المنافسة في أسواق العمل المحلية و الإقليمية و الدولية. و لأن بسم البحث العلمي بها في حل مشاكل المجتمع القومية، وأن يقوم علماؤها البازرون بدور فعال في تطوير العلوم و استكشافاتها و تحديث نظرياتها." 

و بما أن عضو بوحدة الجودة في كلية الآداب، و عضو بيئة التدريس في قسم اللغة الإسبانية و أدابها، و في القسم الإسباني بمركز التعليم المفتوح، وعضو في المشروع البحثي المشترك للتعليم الإلكتروني بين جامعة القاهرة و جامعة كومبلونس بمدريد، عزمت على القيام بهذه الدراسة البحثية لتقوم عملية التعليم و التعليم في تخصص اللغة الإسبانية و أدابها و ثقافاتها بواسطة النظام الحديث في تصميم و تقديم البرامج الأكاديمية، و للتعريف بها في الأوساط المختلفة، من جهة أخرى.
ويعد مساهمة متواضعة للكشف عن الصعوبات التي تواجه الطالب في هذا المجال، ووضع الحلول المناسبة له وليبيته المحيطة. وكل هذا من أجل رفع مستوى العملية التعليمية التفاعلية في هذا التخصص، وإضافة الحيوية للمواد النصية في الدراسات الإنسانية، وضرورة توعية كلا من المتعلمين والمعلم بأهمية التطور السريع الناجح عن تكنولوجيا المعلومات ودوره في النهضة المعرفية للأمم شتى.

وأخيراً، تعتبر مسهامتى هذه خطوة صغيرة ضمن الخطوات العملية للقائمين على عملية الإصلاح في جامعة القاهرة، لكنها تستحق المحاولة من أجل غد أفضل لأول وأقدم جامعة في أفريقيا وشرق الأوسط:

جامعة القاهرة.

ثالثاً: محاور البحث:

يدور هذا البحث حول محورين أساسيين، وهم:

1. نظام التعليم عن بعد في القسم الإسباني بمركز التعليم المفتوح بجامعة القاهرة: أساليب التدريس المتعددة، والموارد المقررة، والميزات والمساواة التي يراها الطلاب في هذا النظام بناءً على نتائج إستبيان أجري لهم.

2. نظام التعليم الإلكتروني في القسم الإسباني بكلية الآداب بجامعة القاهرة: المجالات التي يغطيها، وأسباب دمج هذا النظام مع التعليم التقليدي والمقارنة بينهما، وصعوبات التي يمر بها الطلاب ونجاحات التي يحققها عند تطبيقه، وقياس مدى استيعاب وتقدير الطلاب له بناءً على نتائج الإحصائية التي أجريت لهم.

رابعاً: أهداف البحث:

تنقسم أهداف هذه الدراسة الوصفية التحليلية الإحصائية المقارنة للوسائل التعليمية الحديثة التي أدخلت في كلية الآداب في إطار نظام التعليم عن بعد، من ناحية، و من ناحية أخرى، في كلية الآداب في إطار التعليم المختلط (النتائج عن خلط التعليم التقليدي مع نظام التعليم الإلكتروني) في جامعة القاهرة، إلى أهداف عامة ترمي إلى:

1. التعرف بآخبار خطوات الإصلاح والتطوير التي قامت بها جامعة القاهرة في مجال تعليم اللغة الإسبانية وآدابها وثقافاتها.

2. التعرف على إنجازات طلاب اللغة الإسبانية، والصعوبات التي يقابلونها والحلول المفترضة لتجاوزها، في كلا من نظامي التعليم عن بعد والتعليم الإلكتروني في نفس المجال.
هذه الأهداف العامة ستتطرق إليها في نتائج البحث للربط بينها وبين نتائج الأهداف الخاصة المعنية بها هذا
الدراسة الوصفية التحليلية الإحصائية المقارنة.
والأهداف الدقيقة والخاصة بهذه الدراسة البحثية، تتمثل فيما يلي:

_ التعرف بالتجربة الجديدة لتعلم اللغة الإسبانية عن بعد في مركز التعليم المفتوح_

_ تحليل مميزات وعيوب تطبيق هذا النظام في ظل إحصائية أجريت على طلاب النظام السابق ذكره._

_ التعرف بالمشروع البحثي المصري-الإسباني لتصميم برنامج تعلم الكتروني تفاعل، لدمج مع نظام التعلم التقديي بكلية الآداب._

_ تحليل إجابيات وسلبيات تنفيذ هذا النظام بعد إجراء إحصائية على الطلاب الذين يخضعون إلى نظام التعلم المخطط._

_استنتاج نتائج أخيرة تعرض الاتجاهات العامة للطلاب وتقترح بعض الحلول للمشكلات المشتركة في ظل المقارنة بين هذين النظامين الحديثين في تعلم اللغة الإسبانية وآدابها وثقافاتها في جامعة القاهرة.

و يبني هيكل الدراسة البحثية على العرض التفصيلي للأهداف التي سبق ذكرها.

خامسا: العرض التفصيلي للأهداف:

1. برنامج ليسانس الترجمة باللغة الإسبانية - كلية الآداب - مركز التعليم المفتوح

1.1 نبذة عن البرنامج

تمت الموافقة على إنشاء مركز التعليم المفتوح في جامعة القاهرة في 28/11/1990 و بعد أول مركز في الشرق الأوسط للتعليم عن بعد أو للتعليم المفتوح، و لدى تم إنشاءه لمواكبة آخر التطورات في مجال التعليم، و لمصادقة فرص التعليم والانطلاقة بجامعة القاهرة للمصريين و غير المصريين. و يتضمن حالياً العديد من الكليات، مثل كلية التجارة، وكلية الزراعة، وكلية الحقوق، وكلية دار علوم، وكلية الإعلام، وكلية الآداب في التخصصات التالية:

أُنتُشِّر هذا التخصص الأخير، الترجمة باللغة الإسبانية، في العام 2009 ، و لاقى نجاحا كبيرا إذ سجل به حوالي 140 طالبا، و بالفعل بدأت الدراسة فيه العام الدراسي 2009-2010 . وبهذا يكون إحدث إنجاز قامته جامعة القاهرة في تجربة و تنفيذ التقنيات الحديثة في طرق تدريس و تعلم اللغة الإسبانية و أدابها و ثقاتها.

و قام أعضاء هيئة التدريس في القسم الإسباني بكلية الآداب بالجامعة، بتخطيط و تصميم و كتابة المقررات الدراسية. و أُنا بدوري قمت بكتابة و تدريس "الحضارة الإسبانية" لطلاب الفرقة الأولى في الفصل الدراسي الأول. و لهذا بدأت على الفور في ملاحظة و مراقبة مدى استيعاب الطلاب لنظام التعليم عن بعد - مع تقييم مستمر لأدائهم و ذلك لكشف الصعوبات التي قد تعوق تقدمهم لتداعيها من بعد. و في قياس مدى نجاح هذا النظام في تعلم اللغة الإسبانية و أدابها و ثقاتها.

يَبيِن الجدول التالي المواد التي يدرسها الطالب في التخصص الإسباني بكلية الآداب في مركز التعليم المفتوح:
المستوى الأول

<table>
<thead>
<tr>
<th>الفصل الدراسي الثاني</th>
<th>الفصل الدراسي الأول</th>
</tr>
</thead>
<tbody>
<tr>
<td>اللغة العربية (2)</td>
<td>اللغة العربية (1)</td>
</tr>
<tr>
<td>القراءة و الفهم بالإسبانية (2)</td>
<td>القراءة و الفهم بالإسبانية (1)</td>
</tr>
<tr>
<td>قواعد اللغة الإسبانية (2)</td>
<td>قواعد اللغة الإسبانية (1)</td>
</tr>
<tr>
<td>محادثة و تعبير بالإسبانية (1)</td>
<td>محادثة و تعبير بالإسبانية (2)</td>
</tr>
<tr>
<td>المادة التفاعلية (حضارة إسبانيا و أمريكا اللاتينية)</td>
<td>المادة التفاعلية (حضارة إسبانيا و أمريكا اللاتينية)</td>
</tr>
<tr>
<td>مادة إختيارية (لغة أوروبية حديثة أو مقدمة في الحاسب الآلي)</td>
<td>مادة إختيارية (لغة أوروبية حديثة أو مقدمة في الحاسب الآلي)</td>
</tr>
</tbody>
</table>

المستوى الثاني

<table>
<thead>
<tr>
<th>قراءة و تعبير، لغة عربية</th>
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</tr>
</thead>
<tbody>
<tr>
<td>لغويات إسبانية</td>
<td>لغويات إسبانية</td>
</tr>
<tr>
<td>القراءة و الفهم و التعبير بالإسبانية (3)</td>
<td>ترجمة تحريرية من العربية إلى الإسبانية</td>
</tr>
<tr>
<td>ترجمة تحريرية من الإسبانية إلى العربية</td>
<td>ترجمة تحريرية من و إلى الإسبانية</td>
</tr>
<tr>
<td>مصطلحات</td>
<td>علم الترجمة</td>
</tr>
<tr>
<td>مادة إختيارية (لغة أوروبية حديثة أو القانون الدولي)</td>
<td>مادة إختيارية (لغة أوروبية حديثة أو تنظيم و إدارة)</td>
</tr>
</tbody>
</table>
المستوى الثالث

<table>
<thead>
<tr>
<th>نصوص من الأدب العربي المعاصر</th>
<th>ترجمة تحرييرية من و إلى الإسبانية</th>
</tr>
</thead>
<tbody>
<tr>
<td>ترجمة تنبوية و منظورة</td>
<td>نصوص و مصطلحات</td>
</tr>
<tr>
<td>لغويات (التركيب و الدلالة) باللغة الإسبانية</td>
<td>تدريبات على الاستماع و التعبير الشفوي</td>
</tr>
<tr>
<td>مادة اختيارية (لغة أوروبية حديثة أو سياسة و إقتصاد)</td>
<td></td>
</tr>
</tbody>
</table>

المستوى الرابع

<table>
<thead>
<tr>
<th>نصوص عربية حديثة و متنوعة</th>
<th>نصوص عربية حديثة و متنوعة</th>
</tr>
</thead>
<tbody>
<tr>
<td>لغويات إسبانية من خلال النصوص</td>
<td>لغويات إسبانية من خلال النصوص</td>
</tr>
<tr>
<td>ترجمة تحرييرية من و إلى الإسبانية</td>
<td>ترجمة تحرييرية من و إلى الإسبانية</td>
</tr>
<tr>
<td>ترجمة تنبوية و منظورة</td>
<td>ترجمة تنبوية و منظورة</td>
</tr>
<tr>
<td>لغويات مقارنة</td>
<td>لغويات مقارنة</td>
</tr>
<tr>
<td>مادة اختيارية (لغة أوروبية حديثة أو سياسة و إقتصاد)</td>
<td>مادة اختيارية (لغة أوروبية حديثة أو القانون الدولي)</td>
</tr>
</tbody>
</table>

1.2 طرق التدريس

أما طرق التدريس المتاحة في التخصص الإسباني هي نفسها المعتادة استخدامها إلى حد كبير في نظام التعليم عن بعد عامه، مثل اللقاءات الدورية في الجامعة، بواقع محاضرة.
للمدة ساعة ونصف كل خمسة عشر يومًا، لفتح باب الحوار و الأسئلة الخاصة بالمادة التي تدرس، أي أن الهدف الأساسي من وراء هذه اللقاءات هو التواصل المباشر مع الطلاب، مما يعطي المادة العلمية بعد عاطفية و يضفي على العملية التعليمية نوع من الدفء الإنساني الذي بدوره يسهل امتصاص المادة و يساعد على تقبلها و تهدئة المخاوف منها.
و من جهة أخرى، يقوم المركز بطبع و توزيع الكتب الدراسية على الطلاب، و يسجل المحاوارات على أقراس الحاسب الضوئية، و أيضاً بثها على الموقع الخاص بالمركز.
و بالإضافة إلى ذلك، تبث المحاوارات المصورة عبر قناة مخصصة لهذا البرنامج بالنايل سات.
و ذلك على مدار 24 ساعة يومياً. و تستخدم بالطبع الشبكة العنكبوتية للمزيد من التحصيل، و يقوم الطلاب بأخذ التمارين المطلوبة و إرسالها بالبريد الإلكتروني لي أصححها و أعيد إرسالها لهم، مما يخدم كثيرا الطلاب القاطنين في المحافظات البعيدة و البلدان الأخرى.

2. برنامج التعلم الإلكتروني المشترك بين جامعة القاهرة و جامعة كومبوتوس بمدريد
2.1 نبذة عن البرنامج
إن من أحدث أشكال التعاون بين الجامعات هي المشروعات البحثية المشتركة بين الجامعات و خاصة المتعلقة بالتعلم الإلكتروني. و في هذه الورقة البحثية سنتحدث بالذكر مشروع مشتركاً بحثياً رائداً في مجال التعاون بين الجامعات المصرية والإسبانية. و هذا المشروع البحثي الذي يتم العمل فيه لمدة أربع سنوات (و الذي بدأ العمل فيه منذ سنتين) يتم تمويله من الوكالة الإسبانية للتعاون الدولي (AECI) ، التابعة لوزارة الخارجية الإسبانية، يحمل عنوان: "تصميم و تنفيذ برنامج تعلم الإلكتروني تفاعلي، وفقاً لمعايير الجودة العالمية، لتعليم اللغة والأدب و مهارات الاتصال و الثقافة الإسبانية للطلاب المصريين".
و الجدیر بالذكر أن الوکالة الإسبانية للتعاون الدولي (AECI) وضعت، و لأول مرة، میزانة خاصة لتمويل مشروعات بحثیة مشتركة بین جامعات إسبانية و جامعات من خمسة دول عربیة هی: الجزائر و مصر و الأردن و المغرب و تونس (وفقاً للترتيب الأبجدی بالحروف اللاتینیة). و هی بذلك تکون قد خرطت خطوة جدیدة و بدأ زیادة و تحسین فرص التعاون بین إسبانيا من ناحیة و العالم العربی من ناحیة أخرى، لأنه وفقاً لاسم هذه المنظمة، فإنها تعرّف بالتعاون بین إسبانيا و سایر الدول، لكنها تخص العالم العربی و أمريكا اللاتینیة بالنصب الأکثر من اهتمامها بناءً على العلاقات التاريخیة العميقة و الوطیدة بین إسبانيا و كلا المنطقتین من العالم.

و من جوانب الربیادة فی المشروع هن sí یكون فریق بحثی بین جامعات إسبانیة و وجی من الناحیة الخصوصیة أن بموجبه تم تكوین فریق بحثی مصري إسبانی مشترک. يضمن الفریق الإسبانی أستاذة برنزمن لعدة جامعات إسبانیة (و هم يعدوا من ألمع الأسماء فی تخصصهم: تعلیم اللغة الإسبانية کلغة أجنبيّة) و تنسق بینهم أستاذة من جامعة کومبلوتensis بمدرید (واحدة من أهم خمس جامعات إسبانیة حكومیة) ، و فی المقابل من ذلك تکون فریق بحثی من جامعة القاهرة بكلیة الآداب کلغة اللغة الإسبانیة.

و تجد الإشارة أن جميع أعضاء الفریق البحثی المصری من المدرسین الذين حصلوا على درجة الدكتوراه حديثًا من إسبانيا في تخصص اللغة و أدب إسبانی و أمريكا اللاتینیة. و بهذا سيتم نقل الخبرات الأکادیمیة و العملية من أكثر من جامعة إلى الفریق البحثی الشاب فی الجامعة المصرية. كما أن معظمهم أعضاء بوحدة اعتماد معايیر الجودة بكلیة الآداب، جامعة القاهرة، مما سيؤكد على تطبیق فكرة ضمان الجودة فی المشروع.

و هذا الفریق البحثی المصری سيكون له دوره الفعال و الأساسي فی التحكم فی المحتوى العلمی للموارد و فی توجیه الأساتذة الإسبانі المستمر فی المناهج الموجه للطالب المصری بحيث تراعی المشاکل اللغويّة و الأدبية و الثقافیة التي تغفلها كافة المناهج التي وضعت لتدريس الإسبانیة کلّغة أجنبيّة.
ففي هذا الصدد، و كما يتضح من العنوان، فإن البرنامج، و لأول مرة، سيكون عليه إلقاء الضوء بشكل خاص على المشاكل اللغوية والثقافية لدى الطالب المصري عند دراسته للغة الإسبانية.

و أهداف هذا المشروع البحثي المشترك تتلخص فيما يلي:

1. تصميم برنامج إلكتروني يتكون من أربعة مستويات، موافقة للسنوات الأربع في الدراسة التقليدية في قسم اللغة الإسبانية بكلية الآداب جامعة القاهرة.

2. أن يستغرق البرنامج جمع معلومات التعلم الإلكتروني التي لا يتوفر عليها التعلم التقليدي لتدريس الأربعة محاور الرئيسيّة التي حددها: اللغة، الأدب، مهارات الاتصال، والثقافة الإسبانية.

3. أن يراعى الصعوبات والمشاكل التي يواجهها الطالب المصري على وجه الخصوص في تعامله مع المحاور الأربعة السابق ذكرها.

4. ضمان تطبيق معايير الجودة العالمية في هذا البرنامج الإلكتروني.

2.2 طرق التدريس

سيكون البرنامج متنوعاً لأنه سيتبع نماذج و أنماط التعلم الأربعة التي حددها ديفيد كولب (التفكير والنظر والعمل والتجربة). فيقدم تدريبات و نشاطات تغطي هذه النماذج الأربعة، و بهذا يستطيع الطالب أن يحصل على المعلومة و المهارة وفقاً لنموذج التعلم الذي ينتمي إليه. أيضاً يراعى البرنامج نوعية الطالب من حيث الحاسة التي تتحكم أكثر في عملية التعلم عندنا (البصر، السمع، الحركة)، و هو ما لا يحدث في التعلم التقليدي الذي يعتمد على أسلوب واحد فقط أو أثنين على الأكثر.

و الأربعة محاور سيتم تغطيتها عن طريق:
عرض المعلومات و القواعد عن طرق الملفات بكل أشكالها (word، pdf،...)

ربط الموقع بصفحات إلكترونية أخرى، تصميم مؤثرات من الوسائط المتعددة (فيديو، بودكاست)

استخدام أدوات الاتصال المختلفة (الاتصال المباشر الفوري: الشات، الاتصال اللاتزامى: الرسائل الإلكترونية بين الطالب والاستاذ، و المنتديات).

وضع أنشطة مختلفة، مثل تسليم الواجبات المنزلية، و متابعة الدروس عن طريق الصفحة الإلكترونية مع التقييم الدورى و تخصيص ملف بمثابة تقرير عن كل طالب.

أدوات التقييم مثل: استطلاعات رأى للتقييم، و إحصاءات دقيقة تقيس مدى تكرار استخدام الطالب للمنصة الإلكترونية (platform).

وستلاحظ درجة الاستفادة من هذا البرنامج الإلكتروني في تعلم اللغة و الآداب و الثقافات الإسبانية بعد عرض المقررات الدراسية في التعلم التقليدي بقسم اللغة الإسبانية و أدابها بكلية الآداب، كمل يتضح من الجدول التالي:
<table>
<thead>
<tr>
<th>اللغة</th>
<th>المستوى</th>
<th>أدب</th>
<th>اتصال</th>
<th>ثقافة</th>
</tr>
</thead>
<tbody>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>أدب إسباني حتى القرن الرابع عشر</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>أدب إسباني في القرن الخامس عشر</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>المسرح الإسباني (القرن 16 و 17 و 18)</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>الرواية الإسبانية (القرن 16 و 17 و 18)</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>الشعر الإسباني (القرن 16 و 17 و 18)</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>أدب أمريكا اللاتينية حتى القرن 19.1</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>المسرح الإسباني (القرن 19 و 20)</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>الرواية الإسبانية (القرن 19 و 20)</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>الشعر الإسباني (القرن 19 و 20)</td>
<td>محادثة</td>
<td></td>
</tr>
<tr>
<td>- نحو و صرف</td>
<td>محررة</td>
<td>أدب أمريكا اللاتينية حتى القرن 20.1</td>
<td>محادثة</td>
<td></td>
</tr>
</tbody>
</table>

لم ندرج في الجدول المواد الأخرى التي تدرس للطالب في الكلية والتي لا صلة لها باللغة الإسبانية، مثل اللغة العربية و اللغة الأجنبية الثانية مثل "الإنجليزية، الفرنسية، الألمانية، ..."
الإيطالية" و مادة المجتمع المصرى و مهارات التفكير العلمى و الكمبيوتر، حيث أن هذا المشروع يعني بمواد اللغة الإسبانية فقط.

و كما هو واضح من هذا الجدول فإن المحاور الأربعة لا تتم تغطيتها بالتساوي في الدراسة التقليدية، حيث أن:

- محور اللغة: يولي له الاهتمام بواقع 15 مادة في الأربع فرق الدراسة.
- محور الأدب: يولي له الاهتمام بواقع 15 مادة في الأربع فرق الدراسة.
- محور الاتصال: تخصص له مادتى محادثة في الفرقتين الأولى و الثانية، بينما يهمل تماماً في الفرقتين الثالثة و الرابعة.
- محور الثقافة: تخصص له مادتى الحضارة الإسبانية في الفرقتين الثالثة و الرابعة، بينما يهمل تماماً في الفرقتين الأولى و الثانية.

بالطبع لذلك التفاوت في كمية المواد في المنهج التقليدي تفسيره المنطقي، فكل كلية لها عدد موارد محددة تعمل من خلالها على تحقيق أهدافها و رويتها، فعندما يتعلق الأمر بكلية الآداب و بقسم اللغة فيها، فإن الاهتمام الأكبر بطبيعة الحال سيولى لمواد الأدب و اللغة. و في خضم ذلك شغلت محورى الاتصال و الثقافة منزلة ثانوية.

وتعدل هذا التقسيم، سيحقق مشروع التعلم الإلكتروني التوازن بين المحاور الأربعة، بحيث يكون هناك تساوي في التناول بينهم تزديده المعلومات و الأنشطة في محورى الاتصال و الثقافة، مع عدم الإخلال أو التقليل من محتوى المحورين الآخرين.

وبالتالي يكون هذا البرنامج الإلكتروني قد حقق التكامل و التوازن من حيث الكم و الكيف في الأربعة محاور، و عوض اللفظ الكمي في محورى الاتصال و الثقافة في نظام التعليم التقليدي، و أضاف الحيوية على المواد النصية التقليدية.
3. أداء وعينة الدراسة

تعتمد هذه الدراسة في المقام الأول على رصد واقع وأحتياجات طلاب التعليم عن بعد، مناسبة
إفتتاح العام الدراسي 2009-2010، وطلاب التعلم المختلف أيضا الذين بدأون في استخدام
التعليم الإلكتروني كتجربة جديدة عليهم، في التخصص الإسباني.

ولقد قمت في آخر لقاء دوري لي في مع طلاب نظام التعليم عن بعد في تخصص اللغة
الإسبانية، بطرح خمسة أسئلة سبسة، لكن جوهرية، تناسب مع صغر سنهم و بداية تعاملكم
مع أساليب التعلم الحديثة. وقامت بنفس العمل مع طلاب الفرقة الثانية في قسم اللغة الإسبانية و
آدابها. و الأسئلة هي:

السؤال الأول: هل تفضل التعليم التقليدي المدمج مع التعليم الإلكتروني أم التعلم عن بعد؟

السؤال الثاني: هل تعرف ما هو التعليم الإلكتروني؟

السؤال الثالث: هل عندي حاسوب في البيت؟

السؤال الرابع: هل تجيد استخدامات الحاسوب مثل الإنترنت والبريد الإلكتروني والباور
بوينت والورد والإكسيل والأكس،الخ؟

السؤال الخامس: في اعتقادات ما هي اسباب عدم إجادةك للحاسب؟ مادية، تعليمية، ميولية، أو
غيرها من الأسباب؟

وهكذا يتكون الإستبيان من خمسة أسئلة محورية و أساسية للبدء في قياس مدى نجاح تطبيق هذه
النظام التعليمية المستحدثة، مع العلم أن نتائج هذا الاستبيان سوف تكون بمثابة القاعدة الرئيسية
لأستبيانات أخرى أكثر توسعًا في المستقبل.

أما عينة الدراسة فتكون من خمسين طالب يدرسون في السنة الأولى بمركز التعليم المفتوح في
هذا التخصص الجديد، و خمسين طالب آخرين في السنة الثانية بقسم اللغة الإسبانية و آدابها. و
كلا المجموعتين أجابت على الأسئلة التي تغطي المحاور الأولى التي يقوم عليها هذه النظيم الدراسية التفاعلية، لقياس مدى معرفتهم بالأدامة الرئيسية لهذا النظام و هو الحاسوب و استخداماته، و أثاردروج هذه المعرفة على نجاح البرنامج، دون الخوض في تفاصيل المناهج العلمية المتصلة و للامواد الدراسية المقرر: و هما خطوتان مبنيتان على هذه الدراسة الميدانية الأولى في هذا التخصص، و التي خصصنا لها هذا البحث. أى أن هذه الدراسة تعد قاعدة لدراسات أخرى في المستقبل و التي ستجرى بعد ترسيخ هذه النظم في أذهان الطلاب و تعويدهم على المهارات التكنولوجية اللازمة لإنجاح مثل هذه البرامج.

4 نتائج الدراسة المقارنة

السؤال الأول: هل تفضل التعلم التقليدي المدمج مع نظام التعلم الإلكتروني، أم التعلم عن بعذ؟

الإجابة على السؤال الأول من قبل الخمسين طالب في قسم التعليم المفتوح، كانت حقا مثيرا للدهشة، لأن بالرغم من أنهم ينتمون لنظام التعليم عن بعد، إلا أن نصفهم تقريبا يفضل النوع الأول، كما يوضح في الرسم البياني التالي:

فقريبا 60% منهم يفضلون التعلم المختلط، أي أنهم غير مقتنعون بنظام التعليم عن بعد، بينما 40% من الطلاب يفضل هذا النظام الذي يخضع له. لكن نتيجة الإجابة على هذا السؤال من: 

(496)
قبل طلاب التعلم المختلط، تعد منطقية و مفهومة، لأن 92% منهم مقتنع بنظام التعلم المختلط الذي يطبق عليه.

السؤال الثاني: هل تعرف ما هو التعلم الإلكتروني؟
تعمدت في هذا السؤال أن أركز فقط على التعلم الإلكتروني لأعرف إذا كانت إجابة كلا الفريقين على السؤال السابق مبنية على أسس معرفية لماهية هذا النظام، أم أنهم اختاروه لاقترانه بالتعلم التقليدي. و مرة أخرى نرى الإجابات تثير الكثير من الفضول، كما يتضح من الرسم البياني التالي:

و يقسم طلاب التعلم عن بعد مرة أخرى، فنرى أن 54% منهم يعرفون ما هو التعلم الإلكتروني، بينما 46% الباقي لا يعرفونه. لكن مما يثير الفضول أن طلاب التعلم المختلط، الذين بدأوا في استخدامه كتجربة أولية لقياس درجة نجاح تجربة الخلط بين التعلم التقليدي و التعلم الإلكتروني، ليس لديهم معرفة بشكل وأساليب التعلم الإلكتروني، لأن 42% من هذه الفئة الطلابية، أي نصفهم تقريبا، لم يبدأوا حتى في استكشاف هذا النظام الذي قدم لهم للمعاينة والاستخدام كتجربة قبل التعميم.

السؤال الثالث: هل عندك حاسوب بالبيت؟
الإجابة على هذا السؤال من قبل المجموعتين، يكشف لنا أن أسباب عدم معرفتهم بتقنيات النظم الحديثة في التعليم ليست مادية، كما نرى في هذا الرسم البياني الموضح لهذه الحقية:

هكذا يتضح لنا أن تقريباً جميع الطلاب في الفريقين بحوذتهم حاسوب في المنزل.

السؤال الرابع: هل تجد استخدامات الحاسوب المختلفة؟

الإجابة على هذا السؤال بنت لنا أن تقريباً ثلثي الطلاب في كلا النظامين لا يمارسون بصفة دورية استخدام الحاسوب، أي أن الحاسوب لا يمثل أداة أساسية في الحصول على المعرفة وتخزينها، وهذا ما نراه في الرسم البياني التالي:

ففي نظام التعلم عن بعد نجد أن 60% من الطلاب يجدون استخدامات الحاسوب، و18% يجدونه إلى حد ما، و22% لا يعرفون استخداماته على الإطلاق. و هذه النتيجة تطرح
تساؤلين خطرين. الأول: كيف دخل هذا العدد في هذا النظام دون أن يتعلم تقنيات الحاسوب؟
و الثاني: كيف ستتابع هذه المجموعة الأخيرة الدراسة في ظل النظام المفتوح المبني بصفة أساسية على التعليم عن بعد؟
أما بالنسبة لطلاب التعليم التلقائي المدمج مع نظام التعليم الإلكتروني، فنجد أن 30% فقط منهم يجدون استخدام الحاسوب، و 32% يجدونه إلى حد ما، و 38% لا يعرفون كيف يستخدمونه على الإطلاق.

السؤال الخامس: ما هي أسباب عدم إيجادتك للحاسوب؟
نرجع إجابة هذا السؤال إلى ثلاث أسباب: مادية أو مالية أو تعليمية. وو جندا الإجابات تتراوح بينهم بهذا الشكل:

<table>
<thead>
<tr>
<th></th>
<th>Students in Distance learning</th>
<th>Students in Blended learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>%Financial</td>
<td>20%</td>
<td>50%</td>
</tr>
<tr>
<td>%Preference</td>
<td>30%</td>
<td>74%</td>
</tr>
<tr>
<td>%Educational</td>
<td>17%</td>
<td>2%</td>
</tr>
</tbody>
</table>

في القسم الإسباني للتعلم عن بعد، نجد أن 20% من الطلاب يرجعون عدم استخدامهم للحاسوب إلى أسباب مادية، و 30% إلى أسباب مالية، و أخيرا 50% إلى أسباب تعليمية.
أما بالنسبة إلى طلاب التعليم المدمج في كلية الآداب، يضح لنا أن معظمهم يرجعون أسباب عدم إيجادهم لإستخدامات الحاسوب إلى أسباب تعليمية، و هم يمثلون 74% من إجمالي الطلاب.

سادسًا: النتائج النهائية والتوصيات
في إطار التطور المذهل في عالم تكنولوجيا المعلومات و الاتصالات، أدرت التعريف والوصف لآخر المستجدات والإصلاحات في جامعة القاهرة، وذلك بمناسبة افتتاحقسام الإسبانية للتعليم عن بعد والبدء في العمل فيه هذا العام الدراسي في مركز التعليم المفتوح، وأيضاً بمناسبة مرور 25 عاماً على إنشاء القسم الإسباني بكلية الآداب، وإدخال نظام التعليم المختلط فيه، عن طريق دمج برنامج للتعلم الإلكتروني تفاعلي مع نظام التعلم التقليدي، في ظل أول تعاون من نوعه بين الجامعات الإسبانية و الجامعات المصرية، وعلى رأسهم جامعة القاهرة، أول جامعة في الشرق الأوسط.

اختبرت هذه الدراسة بشكل مبدئي الاتجاهات الرئيسية لطلاب جامعة القاهرة المتخصصين في اللغة الإسبانية وذلك بسبب دخول النظام الحديث للتعلم مؤخراً في هذا المجال كما ذكرنا من قبل. وفي الوقت الضوئ على أهم المشكلات التي قابلت الطلاب عند بداية استخدامهم لأنماط التعلم الحديثة، مثل التعلم عن بعد والتعلم الإلكتروني، وذلك بواسطة استطلاع أو استبيان وضع نسبة استخدامهم و اتفاقهم للكمبيوتر لأنه يعد الأداة المعرفية الأولى والأكثر انتشاراً الآن، وبين نسبة إدراكهم واستيعابهم لأهمية مثل هذه النماذج التعليمية الحديثة في توسيع أفكارهم المعرفية.

وبعد تحرير نتائج الإحصائية نكتشف أن نصف الطلاب تقريباً في المجموعتين لا يعرف ما هو التعلم الإلكتروني بالضبط، و في كل مجموعة نجد أن ثلث نسبة الطلاب لا يلجأ إلى الحاسوب على الإطلاق في طلب العلم و المعرفة. والسبب ليس مادة بالدرجة الأولى، كما رأينا، بل يرجع إلى عدم إهتمامهم ببعض الاستخدامات المختلفة للحاسوب. أو في كلمات أخرى، سواء كانت أسبابهم مبولة أو تعليمية، نستنتج أنهم لا يدركون أن الحاسوب اليوم هو الأداة الأكثر انتشاراً و فعالية في الحصول على المعرفة، مما بلغت النظر إلى ضرورة زيادة التوعية بين طلاب الإنسانيات.
الرابط بين التكنولوجيا والعلوم الإنسانية هي حقيقة لم يدركها الطلاب بعد. و بالتالي فآهم السبل إلى نشر التوعية في هذا الصدد هو: أولاً، التوعية المسبقة للطالب بفوائد تكنولوجيا المعلومات عن طريق وسائل الإعلام، و ثانياً، عقد الدورات التدريبية المؤهلة لهم و الاهتمام بالمتابعة المستمرة لمواكبة آخر التطورات في هذه المجالات، ولضمان جودة الأداء بشكل دائم. و هنا يأتي دور وحدات الجودة في الكليات، والتي لاقت بعض الصعوبات في كلية الأداب، و ذلك لمقاومة بعض الأساتذة لها و رفضهم التعاون معها.

فالتغيير يجب أن يكون تدريجياً ليس جذرياً، و ذلك يرجع إلى أن الوعي الجماعي لا يدرك بشكل كامل مدى أهمية أنماط التعليم الحديثة التي تستطيع أن تتخطى اليس المكانى و أن تظهر الحدود الزمنية أيضاً، لما تتمتع به من حربية في التنقل و التخصص خلال مستوايات التعليمية، و تنمية المهارات المختلفة لدى الطلاب و التي كانت تقتصر على عملية التلقى فحسب.

وفي الوقت نفسه، عادة ما ترتبط العملية التعليمية بالمناخ العام للبلد، و تتشابك بشكل مباشر و غير مباشر بالتغييرات الاقتصادية و الثقافية و الاجتماعية الراهنة. و لكن التاريخ أثبت أن المعرفة قد تتحول إلى سلاح خطير يستطيع أن يقرر الظروف الصعبة. فعلى سبيل المثال، لا يتضمن طالب اللغة و الآداب و فرقة المزايا التي تستطيع أن تمده بها هذه النظم التعليمية مثل التعلم عن بعد والتعلم الالكتروني، إذ أنها تسمح له بالتميز و التنقل السريع عبر المستويات الإدارية المختلفة دون التقيد بالحدود المعرفية المفروضة عليه في المناهج التقليدية، و هذا يكون قد خطى بكفاءته و تقدمه خطوات أكثر نحو التميز في مجال العمل من بعد، مما سيعود عليه بالนำไป المادي و المعنى.

ومن ناحية أخرى لا يتم الإشارة في الكثير من الأحيان إلى دور الأساتذة داخل هذه المنظومة المتجددة دائماً. و لهذا يتعتم علينا نحن الأساتذة أيضاً في مجالات العلوم الإنسانية مواجهة كل هذه التطورات لتحسين الأداء الجامعي، و تشجيع استخدام التكنولوجيا في عملية التعليم و التعلم، و لتقليد فكرة التغيير الحتمية في وسائل التعليم، و لتعلم كل ما هو جديد لتطبيقه.
لمصلحة الطالب في المقام الأول، و إضفاء الحيوية و روح التجديد على المواد النصية، و ذلك
كله من أجل إعادة المكانة الهامة التي كانت تتمتع بها العلوم الإنسانية من قبل و التي نراها الآن
متواراة خلف الإنجازات العلمية الضخمة. و هذا يكون قد شارك الأستاذ في عملية الإصلاح
والتي لا يفترض أن تتوقف.

- وأخيرا، وفي ظل التعاون المستمر بين الشعوب المختلفة للنهوض في الكثير من مجالات
الحياة، و بعد ثورة الاتصالات و التكنولوجيا التي قربت الشعوب العربية كثيرًا و يكفي عامل
اللغة المشترك الذي يجمع بين 225 مليون مواطن عربي في ثلاثة و عشرون بلد. نأمل أن
يزداد التعاون بين الجامعات العربية، و خاصة في المشاريع البحثية المشتركة لنتائجها المثرية
دائما. و نحن بدورنا نسعى في نشر اللغة الإسبانية و كل ما يفتح مجالات العمل المطلقة
بإسبانيا و القارة الأمريكية بأكملها.

ولهذا نوصي بالقيام بمشروع بحثي مشترك مماثل في جامعة حمدان بن محمد الإلكترونية
والذي سوف يكون لها السبق في هذا المجال، لأنها سوف تكون أول جامعة في دول الخليج
تقوم بتعليم اللغة الإسبانية – ثاني أكثر اللغات انتشارًا في العالم بعد الإنجليزية- بطريقة عصرية
ومرنة ومليئة بالمزايا التي عرفت عن التعلم الإلكتروني.
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Abstract

The aim of this study is to determine the Standards of applying an Online Learning environment in higher education institutions, through the analysis of the literatures, and the appropriate previous studies. The researcher has identified a list of Standards that should be available to determine whether the higher education institutions have the ability to provide opportunities for the application of Online Learning. Eight criteria have been identified for this purpose with a set of indicators associated with each Standard to govern it. The eight Standards are the Quality in the aims Online Learning, the Physical elements, software and human resources to online Learning, the tools of Online Learning, the design of teaching materials for online Learning, the training and qualifying of University lecturer, the Guidance and tutoring for Online Learning students, the social and cultural relations for Online Learning and the physical environment for Online Learning.

The researcher recommended dependence on the list of standards that have been reached in order to achieve quality in the application of Online Learning Environmental. The researcher suggests a study of Online Learning universities is evaluated in the light of the application of quality standards Online Learning, and to conduct studies on the design of Online Learning Environments in the light of quality standards.

Keywords: (E-Learning, Online Learning, Online Learning Environmental, quality standards)
ملخص الدراسة:

Online Learning Environmental

تهدف الدراسة الحالية إلى تحديد قائمة المعايير اللازمة لتطبيق بيئة التعلم عبر الإنترنت بمؤسسات التعليم العالي، وذلك من خلال تحليل الأدبيات والدراسات السابقة الناسبة لهذا الغرض، وقد توصل الباحث إلى تحديد قائمة المعايير، وقد تم تحديد معايير لهذا الغرض ولكل منها مجموعة من المؤشرات التي تحكمها، وهذه المعايير هي: جودة بيئة التعلم عبر الإنترنت، والعناصر المادية والبرمجية والبشرية، تعليم مواد تعليمية لبيئة التعلم عبر الإنترنت، أدوات Online Learning Online Learning Environmental لـ Online Learning. تدريب وتأهيل الأستاذ الجامعي، التوجيه والإرشاد لطلبة التعلم عبر الإنترنت، الظروف الاجتماعية والثقافية لـ Online Learning Online Learning Environmental، البيئة الفيزيائية لـ Online Learning Online Learning Environmental.

ويوصي الباحث الاعتماد على قائمة المعايير التي تم التوصل إليها من أجل تحقيق الجودة في تطبيق Online Learning Online Learning Environmental.

الكلمات المفتاحية:

(Online Learning Environmental, quality standards Online Learning, E-Learning)

مقدمة:

إن الاهتمام بتطوير مؤسسات التعليم العالي بات ضرورة حتمية، وحاجة ماسة لما مايشهد عليه العصر الحالي من تطورات علمية وتكنولوجية في مجالات التعليم المختلفة، إذ أن واقع التعليم العالي لايزيد على البيئة الصفية أو الدراسات العلمية الحقيقية فقط، حيث أظهرت الوسائل التكنولوجية المتعددة تطبيقاً جديداً للتعلم وهو مايسمي اليوم بالتعلم عبر الإنترنت Online Learning Online Learning Environmental.

وبعد استخدام الحاسب في قطاع التعليم والبحث العلمي، قدمت تطورات علمية قدمت تطوراً هاماً لعملية التعلم والتواصل في فترة زمنية لم تتجاوز العقدين من الزمن. فالإمكانات التي يقدمها الحاسب بهذا المجال في حال تطور مستمر، ويعود ذلك إلى التقدم الذي تشهده هذه التكنولوجيا، سواء كان ذلك في سرعة الأداء أو بساحة التخزين أو غيرها. فبعد تقديم الأرقام الممغنطة (CDs) نجذ أن استخدام الحاسب لم يحد بالبصورة التعليمية معينة ككل، وإنما 참고ت عليه لاستخدامه عالمياً، وأصبحت نواة لخلق بيئة التعلم عبر الإنترنت Online Learning Online Learning Environmental المتتحرك كما هو الحال في المحاكاة Simulation Online Learning Environmental (Al-Jumaily, 2006).
وتعد الشبكة العالمية للمعلومات منصة تكنولوجية أدت إلى ظهور نوع من التعليم الذي جعل المدرسون ينظرون إلى مايصبو إليه استخدام الإنترنت واستخدام الحاسوب من زيادة وفيرة في تنمية خصائص طلابهم، وقد ساعد ذلك إلى جعل غرف الصف بيئة تعليمية تميز بالتفاعل المتبادل مما ساعد ذلك إلى تطور شعر الطلبة بانفسهم ومسؤوليتهم وقردتهم على العمل كأعضاء في فريق، والتفكير بشكل مبدع للوصول إلى حلول مناسبة، وتبادل المعرفة (Clark, 2001).

كما أدت التطورات العالمية المذهلة في مجال نقل المعلومات والتعلم عن بعد Distance Learning إلى حلول توجهات نحو استخدام الوسائط المتعددة Multimedia لкосيلة إتصال تسعى إلى تخفيض الحواجز والعقبات بين مختلف الدول، إذ انتشرت على مستوى التعليم الجامعي مايزيد عن (800) جامعة تقدم برامجها عن بعد، وهو ما جعل الأساتذة الجامعيين يؤكدون على هذا النمط من التعليم الذي سيكون مستقبلاً دور ناجح في تخطى الصعاب التي تواجها جامعاتنا هذا اليوم (مكاوي، 2004).

وتقوم الشبكة العالمية للمعلومات بدور واضح في تنشيط أداء المدرس وطلابه في العملية التعليمية/التعممية من خلال الاستخدام الأمثل للحنك حديث للتعلم الإلكتروني وكعنصر حفز ودافع قوي في تحقيق الأهداف التربوية مما نكرا هذا مسبقاً.

وقد تطورت المحاكاة الكومبيوترية إلى المحاكاة Virtualization التي تهتم بإيجاد تصور جديد لتنفيذ التجارب باستخدام برامج تنفيذ الأداء آلياً وتعطي كونية دقيقة لبيئة التجارب التي يتم تنفيذها (اسماعيل، 2009).

وقد جاء مصطلح Online Learning ليمثل أو يحاكي واقعاً مادياً مثل Online Learning Room، Online Learning Education و Virtual Learning، وقد امت استغلال هذا النمط التربوي، وأصبح متداولًا في التعليم Online Learning، والذي يشير إلى أنه نوع من التعليم المعتمد في عمليته على التكنولوجيا التي تستخدم الكومبيوتر في توفير خبرة والخبرة التربوية أو التي تس mund له بالذات وراء شاشة الكومبيوتر والمدخل خارج إفتراضي كما في الصف الإفتراضي والرحلات الإفتراضية والطرق الإفتراضية وحقائق واقعية تستخدم في إيصال العلم وال التواصل فيه، وتحمل على المعلومات والتدريب عن طريق شبكة الإنترنت، وتتضمن ذلك استخدام مجموعة أدوات تعليمية متغيرة، مما تضيف للعملية التعليمية نوعية من التوافق مع الواقع، وتساعدها مع بعضها البعض لعملية نقلها (Chung، 2003).

وتقدم بيئة التعليم عبر الإنترنت Online Learning Reality كتحقيقة إفتراضية كما في الصور الإفتراضية والرحلات الإفتراضية، وتدخل بيئة التعليم عبر الإنترنت كتحقيقة إفتراضية كما في الصور الإفتراضية والرحلات الإفتراضية من خلال تطور إنشاء هيئة تعليمية تستخدم في إيصال العلم وال التواصل فيه والحصول على المعلومات والتدريب عن طريق شبكة الإنترنت، ويتضمن ذلك استخدام مجموعة أدوات تعليمية متغيرة، مما تضيف للعملية التعليمية نوعية من التوافق مع الواقع، وتساعدها مع بعضها البعض لعملية نقلها (Helesel، 2001).

(506)
كما وتعد بيئة التعلم عبر الإنترنت Online Learning Reality ضرورة مستقبلية وأن التوجه نحوها يعد أحد وأهم آليات تحقيق التغيير التعليمي الممكن للتعليمات العصرية، تلك التي تبدو في التكيف وتحسين نوعية البناء التعليمي العالمي ووجوده بشكل ينطل بمنطقتين عينيتين وتحديد نحو التطور التكنولوجي والاقتصادي، وأن بشبكة المعلوماتية بنكا للبيانات التي تقدم بأشكال متعددة، وهي الطريق السريع للمعلومات، تلك شبكة المعلوماتية من منظور مستقبلي على اعتبار أن النظر إلى تطور التكنولوجي والاتصالات، وبدأت إجماعاً على أهمية استخدام بيئة التعلم عبر الإنترنت Online Learning وتأتي أكفاءت بيئة التعلم عبر الإنترنت كأساس لتحديث المحاكاة التعلمية من خلال الوظائف التي تقدمها هذه البيئة Online Learning Reality، والتي تتلمى بالآتي:

1. تصميم وتمثيل معلومات ثلاثية الأبعاد، كبرامج متعددة الوسائط في بيئة إفتراضية مما يساعد على بناء خبرات تعليمية فعالة.

2. تعد بيئة التعلم عبر الإنترنت Online Learning Environmental يتوفر على أتراكية تطوير ومشاريع تعليمية متعددة، إذ إنها بيئة تعليمية ممكن السيطرة عليها ومحددة بمكانها، وتشجع الطالب على استخدام الكمبيوتر لتطوير المعلومات بما ينطل من أدواء تصميم.

3. يظهر بشكل جاذب يحتوي على المتعة والتسنية والإثارة ومعايشة المعلومات Online Learning Reality. وفي هذا الصدد فقد امتت عدة دراسات بـ Online Learning Reality، وقد قام شكور (2007) بدراسة مستوى تكيب معلم المحاكاة الانفتاحية في مواقع الدراسة، وحالتها وتفعيل الاتصالات بين المعلم والطالب، وتشجع التعلم قاعدة في 현실ية العلوم، وتوفر الدراسة إلى أطمة دور المحاكاة لحل جميع المشكلات في تدريس العلوم.

كما قام كل من جوهر والحاوي (2010) بدراسة المختبر الافتراضي الالكتروني Online Learning Lab-e لتجارب الفيزياء والكيمياويات والترحيب في تطبيقات القيادة والطاقة المتواجدة وتحصيلهم المعرفية، وأظهرت النتائج التي فاعليات المختبرات الافتراضية في تنمية تحسين الطلاب بناء الكيمياء وتنمية قوة الملاحظة للطلاب.

وتأتي أهمية بيئة التعلم Online Learning Reality كأساس لتحديث المحاكاة التعليمية من خلال الوظائف التي تقدمها هذه البيئة، والتي تتلمى بالآتي:

1. تصميم وتمثيل معلومات ثلاثية الأبعاد، كبرامج متعددة الوسائط في بيئة إفتراضية مما يساعد على بناء خبرات تعليمية فعالة.

2. تفتيح بيئة التعلم عبر الإنترنت Online Learning Environmental يتوفر على أتراكية تطوير ومشاريع تعليمية متعددة، إذ إنها بيئة تعليمية ممكن السيطرة عليها ومحددة بمكانها، وتشجع الطالب على استخدام الكمبيوتر لتطوير المعلومات بما ينطل من أدواء تصميم.

3. يظهر بشكل جاذب يحتوي على المتعة والتسنية والإثارة ومعايشة المعلومات Online Learning Reality.
1. ينمو الخيال التعليمي للطالب، حيث يرى المعلومات تتحرك أمامه ويعبث بداخلها، كان يطير داخل المجرة الفضائية.

2. تظهر الأشياء ثلاثية الأبعاد، بداية من صفحات الكتب والخرائط التي تحتويها، حيث يشاهد الطالب المحتويات التعليمية بثلاثة قياسات الطول والعرض والارتفاع، ومن ثم يعيش مع تلك المعلومات في الثلاثي الأبعاد.

3. يساعد على جعل المعلومات أكثر حقيقة، مما يجعل الطالب قادرًاً على الإنجاز بسرعة أكبر.

4. يможم الطالب من حل مشاكل التعليم الحقيقية حيث تساعده في تخييل المشكلات وطرح حلولها وفهمها واستخدامها.

5. يتيح الطالب في الموقع الزائف، وفيه يقوم الطالب بتطبيق المبادئ المراد تعلمها وتجربتها في موقع زائف قريب من الموقف الحقيقي الواقعي، وذلك تجنبًا للخطر الذي قد ينتج عن الإختراط الليلي في الموقف الواقعي، أو اتقاء للكثافة الباهظة التي يطلبها الموقف الأخير، وكما في تجارب الكيمياء الخطيرة والصعبة المناهض (2010, ). (Mehlmann & Other)

6. يتيح الطالب من حل مشاكل التعليم الحقيقية حيث تساعده في تخييل المشكلات وطرح حلولها وفهمها واستخدامها.

7. يتيح الطالب من حل مشاكل التعليم الحقيقية حيث تساعده في تخييل المشكلات وطرح حلولها وفهمها واستخدامها.

8. يتيح الطالب من حل مشاكل التعليم الحقيقية حيث تساعده في تخييل المشكلات وطرح حلولها وفهمها واستخدامها.

9. يتيح الطالب من حل مشاكل التعليم الحقيقية حيث تساعده في تخييل المشكلات وطرح حلولها وفهمها واستخدامها.
كما أن استخدام بيئة التعلم عبر الإنترنت ينطوي على دواعي أساسية تتمثل بما يأتي:

1. ارتفاع مستوى الوعي بأهمية التعليم والتزامة التعلم إلى سن معينة في معظم جامعات العالم.

2. الحاجة المستمرة إلى التعليم والتدريب في جميع المجالات.

3. ارتفاع تكلفة الإشاعات والمباني.

4. عدم القدرة على تلبية الطلب على الخدمة وقبول من يرغب في الدراسة، وازدياد الفصول الدراسية والتدريبي علىgrundläss

5. تساهم في تخفيض تكاليف التعليم والتدريب للموظفين أو الدارسين المنتشرين حول العالم.

6. فضفاضية في جميع النافذات الأخرى غير المباشرة مثل طباعة الكتب وتكاليف السفر ومصاريف ونفقات الإقامة التي تترتب على السفر وما شابه.

7. القدرة على إتاحة التعليم لأكبر قدر ممكن من راغبي التعليم في أي مجال وفي أي بلد.

8. انخفاض تكلفة التعليم يساهم في توفير التعليم باسعار مخفضة للمستفيدين.

9. النقلة على توفير التعليم بأسرع مخصصة للمستفيدين.

10. الحد من تأثيرات العوامل السكانية والديموغرافية والتوزعات العمرانية.

11. النقص في الكثير من المشاكل الاجتماعية التي تتملع عن التعليم التقليدي، مثل الفروقات بين الطلبة كالمظاهر والملابس واقتناء السيارات و......

12. التفكير في جودة التعلم التربوي التكنولوجي مع المتغيرات الفكرية والمعرفية والميارات الفكرية.

وفي سبيل تحقيق مسبوق، ينبغي علينا إيجاد بيئة تكنولوجية متطورة تؤدي إلى تحقيق أهداف التعلم والتدريب على جودة التعليم التربوي التكنولوجي Learning Environmental Online مبتكر، وضمان تطبيقها في مؤسسات التعليم، إذ تساعد في التعليم داخل مراكز متخصصة بال علم وحرية، وتجعل الطلبة أكثر اشتراكًا بعملية التعليم، ويمكنهم من تحقيق أهدافهم، وتعزز قيمة التعليم، وتعزيز من إعدادهم وفرصهم.

أثار إيجابية تتمثل بما يأتي:

1. زيادة ملموسة في كفاءة عملية التعلم والتدريب بنسبة (60-50%).

2. التحقيق في نماذج التعليم وتدريب بقيمة تتأثر بمستويات و психологيات تعلم وتدريب الأفراد.
التحصيل أفضل بنسبة (60-25%).
_ سرعة أعلى في التعلم بنسبة (60%).
_ ثانيا: الحصول على التعليم والتدريب في الوقت المناسب والمكان المناسب.
_ ثالثا: إعادة التفكير في كافة الأمور والعناصر وتحقيق نتائج في السلك والإدارة وطريقة التفكير:
_ المعلم يصبح مديرا للعملية للغة التعليمية التعليمية بدلاً من ملقا.
_ يمنح الدارس الفرصة في اختيار ما يريد أن يدرسه في الوقت الذي يرغبه.
_ عدد قليل من المتدربين المتميزين لأكبر عدد ممكن من الطلبة.
_ الاعتماد على النفس والتقديم الذاتي ومرافقة تقوية الذات.
_ بناء جيل جديد قادر على الاعتماد على نفسه في كل شيء.
_ رابعًا: توفير حلول جذرية للمشكلات التربوية مثل:
_ تزايد أعداد الطلاب وعدم استيعابهم في الفصل.
_ الفروقات الاجتماعية بين الأفراد.
_ الفروقات الاجتماعية بين الأفراد.
_ الفروقات الاجتماعية بين الأفراد.
_ الفروقات الاجتماعية بين الأفراد.
_ النفس في عدد المعلمين المؤهلين . (العطيوي ، 2006).

في تحقيق جودة التعليم ، يفترض أن يكون مليباً لنفس الجامعة الحديثة Online Learning التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation System التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل لحد الآن ، وأن هناك مبادئ تنظيم الاعتماد Accreditation Institutional التي تؤكد أن أهمية التعليم غير كامل Lалаـن، 2003).

كم وينادي اختصاصياً التدريس المعاصر بجودة التعليم على اختلاف بنياته ، حيث يؤكدون على أهمية الإحتراف الأكاديمي لمدرس المعرفة ، والعمل على تدريس علاقات التعاون والتفاهم مع طلبه ، وتعليمه طرق تدريسه بما يجعل الطالب فاعلاً ومحوراً أساسيًا للعملية التعليمية . (الراشد ، 2005).

ومع رواج الأدوات التي أدى استخدام الإنترنت إلى التعلم عبر الإنترنت التعلم Online Learning ينموا ويتسع بشكل كبير في مرحلة التعلم العالي. وتحاول مؤسسة التكنولوجيا التربوية Education Technology Cooperative من مراجعة الأدوات التي أدى إلى استخدام الإنترنت التعلم Online Learning
الإفتراضي إعتماداً على تقرير معايير جودة المقررات الإلكترونية (SREB) وتتضمن خمس مجالات لجودتها وهي ( المحتوى ، تصميم التعلم ، تقييم الطلبة ، المجال التنفي ، تقويم المقرر وإدارته).


وقد أصبح من المعروف في وقتنا الحالي استخدام التعليم المعرفي تعتمد على تقنية المعلومات والذي يتضمن مجموعة من النشاطات التي يقوم بها المدرس أثناء شرحه وتوسيعه للدروس، كما يهدف هذا التعليم إلى تنمية مهارات التعليم في ضوء معايير التعليم والضوابط في نظام التعليم ليكن مستوى تطور الطلبة وحقق الغايات التعليمية المنشودة، وبعد من أنواع التعليم الحديث الذي يحدث خارج بيئة الصف التقليدية ويتعدى هذا الفرد ويتضمن التعلم عبر الإنترنت Online Learning التعلم عبر الإنترنت.

ويتبعه المدرس لإيصال المعرفة والمعلومات التي تعلم مثل تحسين العملية لحدود الزمان أو مكان، وذلك لتيسير وتسهيل العملية التعليمية / التعليمية (المحيسن, 2003, ص345).

مشكلة البحث:

بواجه التعليم العالي في الوطن العربي تحديات تربوية وتقنية عديدة، تعوق حرركه وانطلاقه نحو افاق من التحرر العلمي والمعرفي.

وتشمل هذه تحديات:

• مدى التعاون في المحتوى التكنولوجي وتقني بين المدارس، مما يسهل التواصل والمتابعة.

• شمولية التعليم عبر الإنترنت في إعداد الطلبة، مما يعتمد على التكنولوجيا وتقنيات التعلم.

• نقص الموارد التربوية والمادية للتعليم عبر الإنترنت.

وتعد المعرفة القديمة دون تجديد أو تطوير، عليه ينبغي وضع خطة إستراتيجية لتطوير منظومة التعليم الجامعي باستخدام تقنيات التعليم الإلكتروني.

وقد ظهرت الحاجات الأساسية تدعو إلى تنمية الإبداع في التعليم العالي، وفق مفهوم (قدرة العقل على تمكين علاقات جديدة من أجل تغيير الواقع).، وتوصيف هذه العلاقات الجديدة من أجل تغيير الواقع.، ويتمثل ذلك بأن تكون البرامج الأساسية لمؤسسات التعليم العالي متنوعة وتعلو من خصائصها المجتمعية، وأن هذا التنوع يقود إلى تحقيق مبدأ التعليم مدى الحياة. (الدهشان, 2007).

وقد تعدت تطبيقات التعليم الإلكتروني بشكل متسارع تتاسب مع التطور المذهل في تطبيقات الحاسب الآلي ومن هذه التطبيقات:

Online Learning و Electronic Classes و الصفوف الإلكترونية Online Learning Reality و Online Learning و Learning Classes والمحاكاة الحاسوبية Computer Simulation والمختبرات الافتراضية Online Learning Labs و مختبرات الحاسوبية.

كما وقد تعدت تطبيقات التعليم الإلكتروني بشكل متسارع تتاسب مع التطور المذهل في تطبيقات الحاسب الآلي ومن هذه التطبيقات: Online Learning و Electronic Classes و الصفوف الإلكترونية Online Learning Reality و Online Learning و Learning Classes والمحاكاة الحاسوبية Computer Simulation والمختبرات الافتراضية Online Learning Labs والمختبرات الحاسوبية.
ويأتي التعمم عبر الإنترنت Online Learning كنوع من أنماط التعليم الإلكتروني ووسيلة أكاديمية تهدف إلى تأمين أرفع مستويات التعليم الجامعي العالمي للطلبة من مكان اقامتهم بواسطة شبكة الإنترنت، وأن هذا التطور في مجال التعليم جاء نتيجة الثورة المعلوماتية وتتطور وسائل الاتصال (الموسى والمبارك، 2005، 23).

وقد أدى ذلك إلى انتشار مواقع التعليم المختلفة والتعلم الإلكتروني (E-learning) عبر الشبكات العالمية للتعليم في مجال التعلم، إذ استخدمت شبكة المعلومات الكترونية من قبل الأساتذة لنشر الدروس والمحاضرات التعليمية، واستخدمت تقنية الاتصال الآلي للتسهيل بين الطلبة بعضهم البعض ومع الأساتذة، كما استخدمت تقنية مجموعات النقاش ومنتديات الحوار لتداخل الآراء بين الطالبين في كافة أنحاء العالم. إذا فإن البرامج التدريسية والمواد التعليمية والمقررات والدورات تخصص لدراسة عدة ويشترط عليها أسئلة من جميع التخصصات بحيث تُنجز الطلبة على التفاعل مع المادة العلمية وفهمها واستيعابها، كما يبيّن فرص الاتصال المزدوج بين الاستاذ وطلبة (الشرهان، 2000، 142).

فإن توفير بيئة تعليمية تعليمية إفتراضية إفتراضية ناحية يستند إلى توفير معايير أساسية تعود إلى نجاح العملية التعليمية / التربوية في مؤسسات Online Learning Environmental المؤسسة التعليم العالي، وذلك من خلال الإجابة عن أسئلة الدراسة الآتية:

أولاً: السؤال الأول، ماهما هي متطلبات الجودة في تطبيق بيئة التعلم عبر الإنترنت Online Learning Environmental؟
ثانياً: السؤال الثاني، ماهما هي مؤشرات الجودة لكل من المعايير المتضمنة في السؤال الأول؟ وتشمل الأسئلة ما يأتي:

1. ماهما هي معايير الجودة في متابعة أهداف تطبيق بيئة التعلم عبر الإنترنت Online Learning Environmental؟
2. ماهما هي معايير الجودة في متابعة النتائج المادية والبرمجية والبشرية التعلم عبر الإنترنت Online Learning Environmental؟
3. ماهما هي معايير الجودة في متابعة نتائج آداء التعلم عبر الإنترنت Online Learning Environmental؟
4. ماهما هي معايير الجودة في متابعة نتائج تدريب وتاقيمتة الجامعي Online Learning Environmental؟
5. ماهما هي معايير الجودة في متابعة نتائج التعلم عبر الإنترنت Online Learning؟
6. ماهما هي معايير الجودة في متابعة نتائج التعلم عبر الإنترنت Online Learning Environmental؟
7. ماهما هي معايير الجودة في متابعة العلاقات الاجتماعية والثقافية لبيئة التعلم عبر الإنترنت Online Learning Environmental؟
8. ماهما هي معايير الجودة في متابعة البيئة الفيزيائية للتعلم عبر الإنترنت Online Learning Environmental؟

أهداف الدراسة:

تهدف إلى تحديد قائمة معايير الجودة في تطبيق بيئة التعلم عبر الإنترنت Online Learning Environmental بمؤسسات التعليم العالي ومؤشراتها المتضمنة فيها.
أهمية الدراسة:

تأتي أهمية هذه الدراسة في:

1. أنها تعد من الدراسات الأولى التي أتمت بإعداد قائمة معايير الجودة في تطبيق بيئة التعلم عبر الإنترنت بمؤسسات التعليم العالي. 

2. قد تكون تمييزاً لدراسات وبحوث جديدة تتناول جوانب أخرى ليا علاقة بمتغير التعليم عبر الإنترنت. 

3. أنها تزود أساتذة الجامعات والعاملين بمجال تخطيط المناهج الدراسية في وزارة التربية والتعليم ومختلف الجامعات العربية بمعلومات عن أهم المؤشرات التي يتطلبها تطبيق التعليم عبر الإنترنت.

مصطلحات الدراسة:

أولاً: معايير الجودة.

تلك المجموعة من المواصفات التي تؤسس المتطابقات الخاصة بأنظمة التعليم العالي المختلفة، ومن الضروري وضعها في بداية تطبيق منهجية جديدة بيدف قياس النتائج النيائية عمى أساسيا، وإن غياب تلك المواصفات عن المؤسسة التعليمية فإنها لا تستطيع الحكم على أدائها وإنجازها سواء كان ذلك أثناء مرحلة التطبيق أم بعدها. ( إبراهيم ، 2003 )

ثانياً: بيئة التعليم عبر الإنترنت.

هي بيئة يتم إنتاجها من خلال الحاسوب بحيث تمكن الفاعل معها سواء كان ذلك ينقضي هذا البيئة من خلال حاسات البصر والسمع أو بالمشاركة والتأثر فيها بمتطلبات تدريس وتطوير. فهي عملية محاكاة ( Simulation) لبيئة واقعية أو خيالية يتم تصويرها وبناتها من خلال الإمكانات التي تتوفرها التكنولوجيا الحديثة باستخدام الصوت والصورة ثلاثية الأبعاد والرسومات لإنتاج مواقف حيائية تندد من تفاعل معها وتدخلها في عالمها. ( شقر ، 2006 )

ثالثاً: التعليم عبر الإنترنت.

يقصد بالتعليم الذي يتم عبر الشبكة الإلكترونية، ويتم من استخدام جملة من الأدوات التعليمية المتطرفة التي تضيف إلى التعليم قيمة ذات معنى، ويهيمن الأدوات التعليمية المتطرفة التي تعمل بنقل وتوصول مختلف أنواع التعليم والآخر، في الدارسين بصورة عامة، حيث استخدام فضاء المعلومات المتصلة بمشغلي الإنترنت، والأقراس المتصلة، وعند إعداد الطرق المتصلة من التعليم لتطبيقه، مع استخدام ماهج ومعطى تعليمي متصلة من الجامعات العالمية المعترف بها دولياً، ويسعى هذا التعليم إلى الإقناع والجودة بأقل قدر من الجهد والكلفة والوقت ( Dubois, 2007 ).

رابعاً: التعليم العالي.

ذلك التعليم الذي يمنح درجة علمية بعد مرحلة التعليم الثانوي، عليه يدخل في مفهوم التعليم العالي المؤسسات التعليمية المتصلة بالجامعات، المعاهد العليا، والكليات، وغيرها من مؤسسات التعليم العالي التي تمنح درجة علمية بعد الثانية ( مذكر ، 2000 ).
منهج الدراسة:

إن منهج الدراسة الحالية وصفي تحليلي ( Descriptive – Analytical ) يعتمد على تحليل الأدب التربوي المعنى بالتعلم عبر الإنترنت، من أجل الوقوف على هذا النوع من التعليم ومعرفة خصائصه وسماته، ثم الخروج بقائمة معايير الجودة في تطبيق بيئة التعلم عبر الإنترنت Online Learning Environmental.

إجراءات الدراسة:

قام الباحث بعدد من الإجراءات لإعداد قائمة معايير الجودة لبيئة التعلم عبر الإنترنت Online Learning Environmental، وكاً يأتي:


2. الاستفادة من آراء المحكمة والأساتذة تخصص تقنية التعلم عبر الإنترنت Online Learning Environmental.

3. بعد الانتهاء من جمع فقرات القائمة تم تفويضها في تسعة معايير أساسية بدورتها الأولية، ومؤشرات مناسبة لها، والجدول رقم (1).

4. تم عرض قائمة المعايير على مجموعة من المحكيمين في مجال تكنولوجيا التعليم والمناهج وطرق التدريس لغرض التحكيم، والإجابة عن ما يأتي:

   أ. مناسبة المعايير في تطبيق التعلم عبر الإنترنت Online Learning Environmental.

   ب. صحة كل معيار وما يحتويه من مؤشرات مناسبة له.

   ج. كفاءة المؤشرات في كل معيار من المعايير.

   د. إضافة أو حذف أو تعديل أي معايير أو مؤشر حسب ما ترون من 가치 للغرض الذي يصب إليه.

5. تم إجراء التعديلات التي أوصى بها المحكمين المتخصصين، حيث تم حذف بعض المؤشرات التي لاتتأتي كما تم حذف المعيار الأخير وهو ( بناء نموذج Online Learning Reality ) حسب توجيهات المحكمين المتخصصين، كما تم إضافة مؤشرات أخرى في بعض المعايير، في حين تم تعديل الصيغة اللغوية لعدد من المؤشرات.

6. تم ترتيب تسلسل المعايير على حسب آراء المحكمين المتخصصين.
7. حصلت قائمة المعايير على نسبة إتفاق المحكمين بمتقاربة (85%) وهي نسبة أتفاق تجعل من القائمة الحالية صالحة للتطبيق في الميدان التربوي.

جدول (1)

<table>
<thead>
<tr>
<th>المعيار</th>
<th>عدد مؤشراته بعد التحكيم</th>
<th>عدد مؤشراته قبل التحكيم</th>
</tr>
</thead>
<tbody>
<tr>
<td>الجودة في أهداف Online Learning Environmental</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>العناصر المادية والبرمجية والبشرية لـ Online Learning Environmental</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>أدوات Online Learning</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>تصميم مواد تعليمية Online Learning Environmental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>تم الغاء المعيار من قبل الخبراء</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>المجموع الكلي لمؤشرات قائمة المعايير النهائية</td>
<td>126</td>
<td></td>
</tr>
</tbody>
</table>

نتائج الدراسة:

سيتم عرض المعايير التي تم التوصل إليها والمؤشرات التي يحتويها كل معيار على حدى، وكما يأتي:

المعيار الأول: الجودة في أهداف التعلم عبر الإنترنت Online Learning.
1. توفير بيئة تعليمية تفاعلية تتمي الإبداع والتفكير لدى الطلبة.

2. تعمل بيئة التعلم عبر الإنترنت 

3. تقليل الكلفة المادية في المباني والتجهيزات التقليدية.

4. الاهتمام بذوي الاحتياجات الخاصة والعمل على تنمية مهارات الحياة المهنية المرتبطة بمهارات التعلم الواقعي والتفاعل معه ، Online Learning Reality ، كأدوات تتضمن بنظارات فضات ، Gloves ، اليد التفاعلية لحاسة اللمس ، عصي الألعاب ، ومجسم و ........ الخ.

5. مواكبة الانتشار والتطور السريع لتقنية الوسائط التفاعلية في مختلف مجالات العلوم والمعرفة.

6. إمكانيات فصل التعليم لجميع الأعمار بدون قيود زمنية ومكانية لإجراء العملية التعليمية.

7. المساهمة في تلبية إحتياجات سوق العمل.

8. تقليل الضغوطات التي تواجهها التعليم العالي التقليدي.

9. يشجع مجتمعات المعرفة إلى الاتجاه إلى عصر المعرفة والتكنولوجيا.

10. الإمارات عامل سرعة في التحرك والانتقال أثناء استخدام النموذج بشكل سهل وبسيط.

المعيار الثاني : العناصر المادية والبرمجية والبشرية لبيئة التعلم عبر الإنترنت

1. توفير أجهزة كمبيوتر PC يعمل بنظام Linux أو Windows SGI ومناسب لتحقيق أهداف 

2. إعتماد برامج سهلة الاستخدام كبرنامج Browser Plug in

3. توافق النموذج الافتراضي ومكوناته مع منتجات الشركات العالمية من برامج ومكونات متطورة وبشكل مستمر.

4. توفير صندوق أدوات Tool Box Online Learning Reality

5. توفير معد برامجيات Computer Host و (Online Learning Reality Modeling Language) VRML و MATLAB

6. توفير منصب برنامج Stimulant

7. توفير وصلة محاكاة Word Wide Web (www) و خدمة E-mail.
التخاطب (Chat) ، وخدمة الفهرسة (Archie).

9. وجود مدرب النظام التعليمي الافتراضي System Coach داخل الحجرة الافتراضية.

. Deliverer

10. وجود أخصائي نقل وتسليم المعلومات والاحتياجات.

. Knowledge Librarian

11. وجود أخصائي المكتبة المعرفية.

. Evaluation

12. وجود أخصائي التقويم.

Record Data Base Manager

13. وجود مدير قاعدة بيانات السجلات.

14. اعداد نموذج لتنظيم العمل والانتقال بين الفصول الافتراضية.

. Costs

15. وجود إدارة تعليمية ملونة Workflow Management coalition تهتم بتحديد الأدوار Roles والتتكفل المادية.

. Content Provider

16. وجود إدارة تعليمية افتراضية متكاملة تشمل أخصائي التكنولوجيا Technical ومجهز المحتوى Content Provider ومع المهام.

. Generator Task

17. بث برامج حية من خلال الطريقة المباشرة (المتزامنة) حيث يخضع فيها كل أطراف العملية التعليمية في أن واحد.

المعيار الثالث : أدوات التعلم عبر الإنترنت

. يتضمن Online Learning:

أ. أدوات التعلم عبر الإنترنت المجردة Online Learning Abstraction .

1. توفير أداة الرسم الجرافيكي التي تستخدم لبناء Online Learning Environmental المجردة.

2. توفير أدوات تصميم وحذف وإعادة تسمية وتصنيف الكائنات اللازمة.

3. جعل التعلم عبر الإنترنت مزيناً لقاعدة البيانات Taxonomic Structure.

4. تصميم الأدوات التعليمية لعرض المفاهيم المعرفية Environmental Effects Tool.

. يشمل Environmental Effects Tool:

1. إعداد صورة مؤثرة للمكانية.

2. إدخال بيئة مصورة داخل التعلم عبر الإنترنت.

. The Economic Artifact Tool

ج. أداة الإنتاج الاقتصادي Online Learning Reality

1. توفير كافة المعلومات الخاصة برامج Online Learning Reality.

2. استخدام مكونات بناء عنصر الشئ المراد تكوينه.
3. إمكانية استخدام المستخدم (الاستاذ وطلابه) خواص العنصر أو الشيء المراد بناؤه أو تزويده بالخواص عن طريق النظام المستخدم وذلك لإضافة خواص جديدة للشخصيات أو المكونات التي يشاهدها.

- Conditional Conversation

- Online Learning

- بناء الخريطة الافتراضية المكانية.

1. استخدام التصميم الجرافيكي والتأثير في جميع المساحات بالتعليم عبر الإنترنت.
2. اعتماد واجهة تشبه الخريطة ويعد فيها علاقات الأماكن والمساحات وبعضها البعض مع الأماكن الأخرى.
3. بناء مساحات جديدة تسمى الحجرات وتوفر في الخريطة على شكل، يتم بناء القاعة بالتوجه المكاني في اتجاهات ثنائية متاحة.
4. استمتعة المستخدم من الضغط على أزرار خاصة تمكنه من مشاهدة بيانات وصور القاعة على الخريطة.

Online Learning الكاملي.

- بناء أداة بناء

1. تنسيق وإدارة عمليات بناء
2. دعم جميع أدوات العالم الافتراضي، وإدخالها إلى واجهة البرنامج الذي توضحه الصورة.

- أداة Alliance

1. تعديل واجهة المشاهدة من حيث اللون.
2. تصميم الكائنات المتعددة الفئات.

Online Learning المعيار الرابع: تصميم مواد تعليمية للتعلم عبر الإنترنت

1. تنظيم محتوى التعليم بحيث يتم صياغته في شكل وحدات تعليمية صغيرة.
2. إعداد محتوى التعليم يحتاج إلى تنظيم الموقع الافتراضي بصورة أكثر جدية.
3. أن تصميم أداة الأبحار داخل المقرر بعناية.
4. إحتواء المحتوى التعليمي على أنشطة متعددة تجعل الطلاب يتفاعلون مع الموضوع الدراسي.

Online Learning Reality

5. اعتبار الوضعية قدر الإمكان في عرض النماذج والأشكال الخاصة بالمعلومات التي تعرض بـ Online Learning
6. أن تراعى الأهداف التعليمية مواد
7. ملاحظة تصميم المقررات الألكترونية التكنولوجية الحديثة.
8. دمج المواد التعليمية بعناصر الوسائط المتعددة كالتسجيل الصوتي والمؤتمرات والدوائر الخ. الإنتاج بالوقت المناسب والخصوص لتقديم المقترح.
9. يتبع آراء الطلبة والرد على أسئلتهم وتقصيهم.
10. أن تكون تقييمات الطلبة مناسبة.
11. يقدم تزويد الطلبة بالرجل الكافي لتساؤلهم على الشبكة الإلكترونية الافتراضية.
13. استعمال أدوات الاتصال المتزامن وغير المتزامن التي تشجع التفاعل بين الطلبة والمقررات التعليمية الافتراضية.

14. خلق رابط إجتماعي للتواصل بين الاستاذ وطلبتته وبين الطلبة أنفسهم.

15. أن ترتبطصفحات الويب للمقرر بطريقة منطقية.

16. تحديد نوع المشاركة في النقاش الرقمي أما النقاش المتزامن أو غير المتزامن.

17. تحويل التعليم إلى نموذج فردي وذلك حسب قدرات وسرعة الطلبة في عملية التعلم.

18. يقوم الاستاذ بتحديد جدول المحاضرة أو إعطاء واجبات أو تحديد مدة الدراسة.

19. يمكن التعتميم ذات طابع فردي سائدا في هذا النوع من التعلم، ومنهم من يتابع الطلبة وهم يمتحنين، و....

20. وجود مواد مساندة أو مرجعية كالأمثلة والنماذج والتطبيقات العملية والأشكال والتي تستخدم كأنشطة تدريبية.

21. إعداد المحاكاة الحقيقية بالصورة والصوت في معالجة كل مقتضيات العملية التعليمية.

22. مراجعة المقرر المصمم الالكتروني بعد الساعات المخصصة له.

23. مراجعة أن المستخدم هو إنسان له سلوكه في إكتساب المعرفة، وليس لديه سقف زمني محدد ما يتعلمه.

24. إعداد الجانب التفاعلي أثناء إعداد المحتوى الإفتراضي المبرمج Contact Ware.

25. يمكن الطالب من التعلم الذاتي وانتخاب الطريقة التدريسية المناسبة.

26. وضع دليل خاص بالموضوعات ذات الصلة على شبكة مسؤولة Online Learning.

27. إرسال أداة إرشادية للطلبة وتعريفهم بأهمية الاستعداد للدراسة ودليل التعليم المستقل وكيفية القيام بمشروع بحثي Online Learning.

المعيار الخامس: تدريب وتأهيل الاستاذ الجامعي

1. إنشاء مركز خاص بتدريب الاستاذ الجامعي داخل أو خارج المدرسة Online Learning.

2. تدريب الاستاذ الجامعي وفق إحتياجات Online Learning.

3. تشييع الاستاذ الجامعي للانترنايت بدورات التدريب على طريقة Online Learning.

4. تحديد الفترة الزمنية المناسبة لتمارين التدريب الالكتروني Online Learning.

5. تكليف الاستاذ الجامعي ببناء وتجميع مقررات الالكتروني Online Learning.

6. تزويد الاستاذ الجامعي المتدرب بشئودة تدريب على استخدام وإدارة Online Learning.

7. صرف مكافأة (مادة، معنوية) لم يتدرب على Online Learning.

8. استعمال برامج تعليمية كافية لتعلقام برامج التدريب والإعداد Online Learning.

9. التأكد على متاحة الاستاذ الجامعي المتدرب بعد تخرجه من الدورة التدريبية Online Learning.

10. استعداد الشهادة المتنوعة لأغراض الترقية العلمية والمناصب الإدارية ضمن نطاق Online Learning.

11. تدريب الاستاذ الجامعي على استخدام استراتيجيات التدريس المناسبة ضمن Online Learning.

12. تعريف الاستاذ الجامعي بمهارة إدارة الصف الإفتراضي والتفاعل والمشاركة مع طلبتهم أثناء التعليم Online Learning.

13. تزويد الاستاذ الجامعي بمهارات استخدام Online Learning.

(519)
15. تعريف الاستاذ الجامعي بإجراءات التدريس الأخرى غير الشبكية .

. Online Learning

16. تقديم بتجهيزات تربوية للاستاذ الجامعي عن فوائد Online Learning

17. تنمية اتجاهات الاستاذ الجامعي نحو التحول إلى Online Learning

18. كسر حاجز الخوف أو الإرىاب التقليد للاستاذ الجامعي عن التعلم عبر الإنترنت .

. Online Learning

19. إقامة ورش عمل عن تنمية مفهوم Online Learning

20. تدريب الاستاذ الجامعي على تولي مهمة مدرب النظام التعميمي

21. تدريب الاستاذ الجامعي على إدارة المجموعات الصغيرة وتقييم أداء الطلبة فيها

22. يساعد الاستاذ الجامعي طلبه على إعداد النماذج التعليمية العملية .

المعيار السادس : التوجيه والإرشاد لطلبة التعلم عبر الإنترنت

1. تزويذ الطلبة بوثيقة درجات توضح مدى تقدمهم في الدراسة .

2. إعتماد التغذية الراجعة التصحيحية في تحقيق الطلبة من إجاباتهم بأنفسهم

3. مساعدة على إنشاء وثيقة تعريفية لذاتهم على الموقع

4. إعتماد آرائهم حول البرامج التعليمية المقدمة

5. إعتماد ملاحظاتهم حول طبيعة النظام التعليمي الإلكتروني المستخدم

. Online Learning

6. تزويذ جميع الطلبة بقائمة إخبارية عن ما هو مطلوب منهم أثناء

7. توفير برامج الكتروني لكل طالب على الموقع الجامعي

8. معرفة نقطة شروع الطالب ومدى تقدمه في دراسته

9. تحديد مميزات واتجاهات الطالب الراغب بالتعلم عبر الإنترنت

. Online Learning Environmental

10. تراعي الفروق الفردية بين الطالبة .

Online Learning Environmental

11. قدرة المؤسسة الإفتراضية من استيعابها للطلبة من خلال إعتمادها على المقابلات الفردية وحيا لوجه عبر الشبكة

12. يؤدي الطلبة ابتعادات تقنية على الخط الشبكيي في وقت محدد وموقف على الموقع الإفتراضي .

اعتماد استمارة مقابلة موضوعية ومقدمة توضع على الموقع لتحديد نوع الطالب والدرجة العلمية التي يرغب الحصول عليها من أجل تحديد المستوى الدراسي الذي ينبغي الاتصال به .

المعيار السابع : العلاقات الاجتماعية والثقافية لبيئة التعلم عبر الإنترنت

Online Learning

1. تزويذ الطلبة بفتح مفهوم Online Learning بين أفراد المجتمع

2. نشر ثقافة Online Learning بين أفراد المجتمع

3. توفير برامج Online Learning بلغة متناسبة للطلبة

4. إصدار التشريعات المنتظمة Online Learning

. Online Learning

5. تشجيع المؤسسات التعليمية على بنمي Online Learning

6. التربية الذاتية لأفراد المجتمع قبل تطبيق Online Learning

. Online Learning

7. تفعيل سبل المشاركة المجتمعية في
محو أمية للثقافة الألكترونية وا دراك الجوانب الإيجابية والسلبية لتقنية الإنترنت.

اعتماد ضوابط وأخلاقيات الدين الإسلامي والسنة النبوية الشريفة ومعايير سموكية لنظرية المنيج الإسلامي تكون حاكمة لما تثيره استخدامات التكنولوجيا من قضايا ومشكلات للطلبة المتطلعين.

حمض القضايا الجدلية والشرعية والقانونية على مستوى إنتاج التكنولوجيا واستخدامها بالتعلم عبر الإنترنت.

كشف الجوانب الإيجابية والسلبية لتقنية الإنترنت 

المعيار الثامن : البيئة الفيزيائية للتعلم عبر الإنترنت

• Online Learning Class Room ذات حجرة إفتراضية Online Learning Class Room
• قائم مؤسسة ذات حجرة إفتراضية 
• بث برامج حية من خلال الطريقة المباشرة (المتزامنة ) حيث يخضع فيها كأطراف العملية التعليمية في أن واحد.
• تخصص ساعات مكتبية (إرشادية ) وتحدد بمواقيت ثابتة يمكن من خلال الطالب الاتصال المباشر مع استاذه.
• توفير مكان تقديم نموذج Online Learning Reality بما يساعد راحة المتعلم ( قاعة صفية أم قاعة استوديو خاصة).

مناقشة النتائج:

يوضح من النتائج التي تم التوصل بها أن تجربة تعد من التجارب الرائدة المستخدمة في تطوير النظام التعليمي وتحديث جودته التعليمية / التعلمية ، حيث تم إعتماد الحاسة الألكترونية في التعليم كأسلوب إداري ، كما يمكن أن يؤدي ذلك إلى تطوير أساليب التعليم ، من خلال تطبيق معايير الجودة في تعليم المعلوماتية ضمن المناهج الدراسية في عدة مستويات تتراوح بين محو الأمية المعلوماتية وحتى المناهج المتخصصة المهنية.

إذ ان التعليم بمساعدة الحاسوب الإلكتروني يعد وسيلة مناسبة لتمكين ملائمة ملائمة للمعلمين في جوانب مختلفة من المعرفة ، فعندما تكون البيئة التعليمية من نوع النمذجة الإلكتروني E-Learning فإن هذا الأسلوب قد يؤدي إلى تسهيل العملية التعليمية ونقل المعرفة بشكل أعمق إلى أذهان المعلمين واستثارة إمكاناتهم الكاملة من خلال التفاعل الشيق بين الطالب وتلك البيئة.

توصيات ومقترحات الدراسة:

• Online Learning Environmental

يوصي الباحث بالاعتماد على قائمة معايير الجودة في تطبيق بيئة التعلم عبر الإنترنت (Online Learning) ، وإجراء دراسات تتعلق بصياغة بيئة التعلم Online Learning
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التعليم الجامعي الالكتروني: دراسة لجامعات عربية وأجنبية مختارة
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مقدمة:
أنتج التطور السريع والمهذل الذي حصل في مجال تكنولوجيا المعلومات والاتصالات، أن أصبحت وسائل التعليم التقليدية غير كافية في التعليم لاسيما بالنظر للأعداد الكبيرة للطلبة لاسيما في مرحلة التعليم الجامعي، ليس هذا وحسب بل ولم تعد هذه الأساليب مناسبة مع التوجهات العلمية الحديثة في التعليم، كما أنها أصبحت ضرورة إستراتيجية في ضوء ما اصطبح عليه في اقتصاد المعرفة.

وبالنظر لما سبق فقد بدأ العالم يوجه في وقتنا الحالي فيما يتعلق بالتعليم العالي نحو التعليم الالكتروني والتعليم عن بعد Distance Learning والتعليم Learning الذي أصبحت محل إنفاق العديد من مليارات الدولارات سنويا، كما أن مصطلح التعليم عن بعد يتوقع أن يتراجع في المستقبل القريب لظهور مصطلح آخر أكثر شمولية هو "تعليم الافتراضي Virtual Learning" نتيجة للتطور المذهل الحاصل في مجال Multimedia الوسائط المتعددة والاتصال والحوار عن بعد، وفي هذا الصدد بلغ عدد الجامعات الافتراضية على سبيل المثال في كوريا الجنوبية 15 جامعة، وفي جمهورية الصين الشعبية 47 جامعة.

ويجمع العديد من الخبراء على عملية التعلم في الوقت الحاضر وكذا في المستقبل ستعتمد بشكل كبير على التقنيات الإلكترونية التي ستؤدي حتما لتغيير جذري في العملية التعليمية، وهو ما يتطلب العمل وسرعة تأهيل الطلاب والعمل على إعدادهم من أجل ضمان تواصلهم بشكل فعال وزيادة الفرصة التي سيجلبها التعليم الالكتروني معه والتي ستتحدث العديد من التغييرات في جميع المجالات.

وتجرد الإشارة في هذا الصرد إلى أن المدينة الجامعية الإلكترونية أو الافتراضية وجامعة الإنترنت وغيرها لم تظهر وتنتشر في التعليم العالي لكنها ظاهرة حديثة جاءت متزايدة مع التنامي المتسارع في مجال تقنيات المعلومات والاتصال لاسيما تقنية الإنترنت وتطبيقاتها في أواسط وأواخر التسعينيات من القرن الماضي.
ويمكننا القول بأن أهداف ونماذج الجامعات الإلكترونية مختلفة، إلا أن مفهوم هذه الأخيرة يستقطب اهتمام بتزايد بشكل ملحوظ من قبل الحكومات ومؤسسات التعليم العالي في كل من الدول النامية والدول المتقدمة على حد سواء، وهو ما يعكس اهتمامًا من خلال الدراسات والإحصائيات التي جمعت عن التعليم الإلكتروني الجامعي، وتصعب علينا في وقتنا الحالي القول بأن دولة في العالم تقريبًا لا يوجد فيها نوع آخر من أنماط التعليم عن بعد، لاسيما مع انتشار جامعات التعليم عن بعد والتعليم المفتوح والتعليم الافتراضي في غالبية الدول من أستراليا مرورًا بإفريقيا ومن أوروبا إلى أمريكا، ليس هذا وحسب بل أن العديد من الجامعات تدعم إزامية التوسع في استخدام تقنيات التعليم لتحسين التعليم هذه، وكذا تقديم مقررات كاملة على الإنترنت، كما أن عدد الطلبة الذي يودون الدراسة بهذا الأسلوب (أي باستخدام الإنترنت) في تزايد مستمر، وبالنظر لهذا الاهتمام من قبل الجامعات بالتعليم الإلكتروني رصدت ميزانيات ضخمة ووضعت استراتيجيات مناسبة لإنجاحه، وكرست الجامعات العديد من الخبراء الأكاديميين لعملوا في فرق عمل وقوى مهام لإنجاز أهداف تلك الجامعات وتحقيق رسالتها.

يساعد التعليم الإلكتروني الدول التي تعمل على تطبيقه في تحضين كل من إدارة التعليم وزيادة كفاءتها، ويساعد الجامعة على تجاوز حجودها الجغرافية للوصول إلى الطلبة لاسيما في المناطق النائية، كما أنه يعمل على حل المشاكل التعليمية التي تتعلق بنقص الكفاءات الأكاديمية وكذا نسبة الأساتذة والتي تقابلها زيادة عدد الطلبة، وهو ما يساهم في تحسین المستوى الأكاديمي للطلبة وهو ما يعكس إيجاباً في المستقبل على كفاءتهم فيما بعد كموظفين بمواقفهم لما يحصل من تطورات سريعة في مجال تخصصهم.

وتشير الأرقام والإحصائيات إلى أن نهاية القرن العشرين وبداية الألفية الجديدة ستشكلان معلمةً بارزة في مسيرة التعليم العالي، وهذا نتيجة لتفاعل جملة من العوامل أبرزها:

زيادة الطلب على التعليم العالي، وهو ما أشار إليه البنك الدولي بأن حوالي 150 مليون شخص سيعتاجون تعليماً جامعياً بحلول سنة 2025.

التطور الهائل في تقنية الإنترنت.

رغبته العديد من الدول في توسيع فرص التعليم الجامعي وتحسين جودة التعليم وتقليل التكلفة. وسنقوم من خلال هذه المداخلة التركيز حول تحليل ومقارنة عدد من الجامعات التي تأخذ بنظام التعليم الإلكتروني في العالم من حيث نشأتها واعتمادها ونماذجها التنظيمية، وأساليب تطوير مقرراتها، بهدف محاولة التعرف على أوجه الشبه والاختلاف بين جامعات عربية وغربية مختارة، إلى جانب تحديد أبرز
عوامل انتشار ونجاح هذه الجامعات، مبرزين مدى جودة التعليم الجامعي الإلكتروني محملة الإجابة عن الإشكالية التالية: ما هي أوجه الشبه والاختلاف بين الجامعات العربية والغربية؟ من حيث نشأتها، اعتمادها، نماذجها التطبيقية، وآليات تطوير المقررات الإلكترونية.. الخ؟ وتفترض عن الإشكالية الرئيسية السابقة التساؤلات الفرعية التالية: ما هي العوامل التي كانت سببا لظهور التعليم الإلكتروني الجامعي؟ وما هي جودة هذا الأخير؟ وما هي العوامل التي يجب توافرها لنجاح التعليم الجامعي الإلكتروني؟

وإلا للإجابة عن هذه الإشكالية تقوم بنقسيم دراستنا على النحو التالي:

المبحث الأول: مفهوم التعليم الإلكتروني.

المبحث الثاني: التعليم الإلكتروني في الجامعات العربية والغربية –دراسة مقارنة.

المبحث الأول:

مفهوم التعليم الإلكتروني.

بالنظر لما شهدته العالم من تغيرات في السنوات الأخيرة جلبت معها العديد من التحديات ذات الطابع السياسي والاقتصادي، وكذا الاجتماعي والثقافي والتربيوي، وكل هذه التحديات على اختلاف أنواعها شكلت المنطلق للدعوة بضرورة إصلاح النظام التربوي بكل مكوناته لاسيما وإن نظرنا لما بواجهه النظام الحالي من عجز عن مواجهة التحديات التي أفرزت بسبب تحول العالم من مجتمع صناعي لمجتمع معاشي، وهذا ما كان سببا وراء توجه الدول للعمل على إصلاح نظام التعليم سعياً منها لإعداد مواطنها بما يتطلب التغير الحاصل في العالم، وهذا ما يستتبع بالنسبة أن تعمل الدولة على التحول من نظام التربوي والتعليم التقليدي في مناهجه أن الأمر لم يعد قابلاً فقط على العامل على اكتساب الطالب المعرف فحسب، بل والعمل على تنمية مهاراته وقدراته وكذا شخصيته بما يمكنه من القدرة على التفاعل مع مختلف تغيرات العصر.

ويتحور اقتصاد المعرفة أساسا حول العملية التعليمية، وهو ما يعكس أهمية الاستثمار في هذا المجال، وقد بدأت الدول العربية بتوجيه اهتمامها للتعليم وإن كان هذا قد جاء في وقت متأخر عن باقي الدول، وأتفقت عليه نسبة كبيرة من عابرداتها، وسنقوم في هذا المبحث وقبل المعرض للمقارنة بين التعليم الجامعي الإلكتروني في عدد من الجامعات العربية والغربية، سنقوم بالعرض لمفهوم التعليم الإلكتروني مبرزين
مختلف فوائده ومتطلباته، ثم بعد ذلك نتعرض لبيان تجارب عدد من الدول العربية في التعليم الجامعي الإلكتروني وكذا تجارب لدول غربية تقوم بالمقارنة بينهما وذلك على النحو التالي:

المطلب الأول: التعليم الإلكتروني تعريفه، أهدافه ومتطلباته.

المطلب الثاني: النماذج التنظيمية للتعليم الجامعي الإلكتروني.

المطلب الأول: التعليم الإلكتروني تعريفه، أهدافه ومتطلباته.

لما كانت دراستنا تتمحور حول عملية التعليم الإلكتروني فإنه يتعين علينا أولا أن نعرف المقصود بهذا الأخير مبرزين في هذا الصدد مختلف التعريفات التي قيلت بشان هذا الأخير، ثم نبني الفوائد المختلفة التي يعمل تطبيق التعليم الإلكتروني في المؤسسات التعليمية بصفة عامة والجامعات بصفة خاصة على تحقيقها وننتهي في النهاية بإبراز متطلبات تطبيقه وذلك على النحو التالي:

الفرع الأول: تعريف التعليم الإلكتروني.

الفرع الثاني: أهداف وفوائد تطبيق التعليم الإلكتروني.

الفرع الثالث: متطلبات تطبيق التعليم الإلكتروني.

الفرع الأول: تعريف التعليم الإلكتروني.

وضعت للتعليم الإلكتروني العديد من التعريفات تذكر البعض منها وذلك على النحو التالي:

عرف الدكتور عبد الله بن عبد العزيز الموسى التعليم الإلكتروني على أنه: "طريقة للتعليم باستخدام آليات الاتصال الحديثة من حاسوب وشبكاته ووسائطه المتعددة من صوت وصورة ورسومات وليالي بحث ومكتبات الالكترونية وكذلك بوابات الإنترنت سواء كان عن بعد أو في الفصل الدراسي المهم المقصود هو استخدام التقنية بجميع أنواعها في إيصال المعلومة للمتعلم بأقصر وقت وأقل جهد وأكبر فائدة."

وعرف التعليم الإلكتروني كذلك على أنه: "منظمة تعليمية لتقدم البرامج التعليمية أو التدريبية للمتعلمين أو المتدينين في أي وقت وفي أي مكان باستخدام تقنيات المعلومات والاتصالات التفاعلية مثل (إنترنت، الإذاعة، القنوات المحلية أو الفضائية للتفاوض، الأقراص المضغوطة، التلفون، البريد الإلكتروني، أجهزة"
الحاسوب، المؤتمرات عن بعد .. من تتوفر بيئة تعليمية تفاعلية متعددة المصادر بطريقة متزامنة عن بعد دون الالتزام بمكان محدد اعتقادًا على التعليم الذاتي والتفاعل بين المتعلم والمعلم.

وعلي اعتبار أن الكثير يقوم بالخلط بين التعليم الإلكتروني كمصدر وليس وراءه التعلم الذاتي والتفاعل بين المتعلم والمعلم، ارتدينا أن نقوم بالتمييز بين الاثنين وذلك على النحو التالي:

**المقرر الإلكتروني (E-Course)**

المهمة يعرف بأنه استخدام التكنولوجيا بأنواعها لتحويل مقرر دراسي إلى شكل إلكتروني يلتزم بضوابط قياسية في الشكل والمضمون كالتفاعل واستخدام الملتميديا والتقييم الذاتي وغيرها.

وينقسم التعليم الإلكتروني إلى أربعة أقسام:

- **النوع الأول (E-Course)**: هو أحد نواعي التعليم الإلكتروني المهمة.

- **النوع الثاني (Cooperation e-Learning)**: وهو يخاطب شرائح مختلفة من المجتمع ومستويات مختلفة من التعليم والثقافة، تكون في الغالب عبارة عن رسائل موجهة وقصيرة.

- **النوع الثالث (k-12 e-Learning)**: والمقصود بـ 12 سنة التعليم ما قبل الجامعي وأهم ما يميزه هو استخدام استراتيجيات تعلم تكون مبتكرة وسلسة على سبيل المثال التعليم باللعب.

- **النوع الرابع (Higher Education e-Learning)**: ويتميز الاهمت بالجانب المعلوماتي على حساب جوانب أخرى وانه يخاطب مستوي واحد من الثقافة والتعليم ويعرف التعليم الإلكتروني في المؤسسات الجامعية على انه "استخدام تكنولوجيا الاتصالات والمعلومات في الإدارة والتعليم والتعلم. ولذا فإن التعليم الإلكتروني يدخل في جميع الجوانب المرتبطة بتكنولوجيا Teaching and Learning المعلومات والاتصالات والتي تخدم استراتيجيات الجامعة كأداة الكلمة والتنمية البشرية والمقررات الإلكترونية وتحديث الأنظمة وخدمة المجتمع وغيرها وعلى كل حال فإن جامعة المنصورة بمؤسساتها التكنولوجية المتميزة كمركز تقنية الاتصالات والمعلومات ومركز الحساب العلمي ومركز التعليم الإلكتروني ومركز إنتاج المقررات الإلكترونية له أكبر مثال لمدى خدمة التكنولوجيا والمعلوماتية للمؤسسات التعليمية أو بمعنى آخر لمدى تبني جامعة المنصورة للتعليم الإلكتروني.
الفرع الثاني: أهداف وفوائد تطبيق التعليم الإلكتروني.

ستعرض في هذا الفرع لبيان أهداف وفوائد تطبيق التعليم الإلكتروني وذلك على النحو التالي:

أولا: أهداف تطبيق التعليم الإلكتروني.

يمكننا تلخيص هذه الأهداف فيما يلي:

١. إعادة صياغة الأدوار في الطريقة التي تتم بها عملية التعليم والتعلم بما يتوافق مع مستجدات الفكر التربوي.
٢. إيجاد الحوافز وتشجيع التواصل بين منظومة العمل التعليمية كالتواصل بين البيت والجامعة والجامعة والبيئة المحيطة.
٣. نمذجة التعليم وتقديمه في صورة معيارية، فالدروس تقدم في صورة نموذجية والممارسات التعليمية المتميزة يمكن إعادة تكرارها، ومن أمثلة ذلك بنوك الأسئلة النموذجية، خطط للدروس النموذجية، الاستغلال الأمثل للتقنيات الصوت والصورة وما يصل بها من وسائل متعددة.
٤. إعداد جيل من الأساتذة والطلبة قادر على التعامل مع التقنية ومهارات العصر والتطورات الهائلة التي يشهدها العالم.
٥. تحرير التعليم من القيود المعقدة به حيث تتم الدراسة بعيدا عن العوائق الزمنية والمكانية كالاضطراب للسفر إلى مركز الجامعات وهو بذلك يجعل المصادر التعليمية أكثر مرونة.
٦. سد النقص في ندرة أعضاء هيئة التدريس في مجال معين والعمل على تلاشي نقص الإمكانيات.

ثانيا: فوائد تطبيق التعليم الإلكتروني.

توسيع مدارك الطلبة والمعلمين من خلال وجود الروابط ذات العلاقة باهتماماتهم العملية Links والنظرية.
سرعة تطوير وتغيير المناهج والبرامج على الإنترنت بما يواكب خطط الوزارة ومتطلبات العصر دون تكاليف إضافية باهضة.
تخطي جميع العقبات التي تحول دون وصول المادة العلمية إلى الطلاب في الأماكن النائية بل ويجوز ذلك لخارج حدود الدول.
المرونة في الزمن والمكان مما يسمح بزيادة فرص التعليم وتنوع برامج التدريب، فالتعليم الإلكتروني يقدم خيارات متعددة للمتعلم فيما يتعلق بوقت التعليم، فتمكن للمتعلم اختيار الوقت الذي يريد التعلم فيه في حين أنه في التعليم التقليدي يكون ملزما بحضور محاضراته في أوقات محددة. تغيير طرق واستراتيجيات التدريس التقليدية بخلق جو تعليمي تفاعلي ملزم بالنشاط والحيوية والمشاركة.

السرعة في الحصول على المعلومات.

اؤثرت الدراسات أن التعليم الإلكتروني يساعد على زيادة ارتباط الطلاب بالدراسة، والإقبال على التعلم وزيادة نسبة حضور الطلاب، وهي المتطلبات الأساسية للتعليم، وهو ما أثبتته دراسة أنجزت في ولاية ماليزيا، وكذلك الأمر في كل من ماليزيا ومعهد مساند بالولايات المتحدة.

اؤثرت الدراسات أن مخرجات آداء الطلاب كانت متصلة بالتقنية حيث أن تأثيرات التكنولوجيا على مخرجات التعلم تكون أكبر بكثير.

تحسين التنمية الاقتصادية: حيث أثبتت الدراسات أن العديد من البلدان تكون التنمية الاقتصادية وراء استثمارات التعليم الإلكتروني، وتبين الدراسة الحالية أن استثمارات التعليم الإلكتروني تحسن التنمية الاقتصادية بطريقة أخرى مباشرة بخلق فرص عمل حيث تدريب الحكومات الحواسيب، البرامج، الشبكات لدعم التعليم الإلكتروني، والأخرى هي غير مباشرة بخلق قاعدة عاملة متعلمة.

إمكانية التعلم من خلال التكرار: ففي فصول التعليم التقليدية يتم توصيل المحاضرة مرة واحدة على أساس جدول محدد، في حين أن التعليم الإلكتروني يقدم فرصا لا محدودة للطالب للاستماع للفصول مرارا وتكرارا.

التكلفة: مثل المصاريف الدراسية ومصاريف الأنشطة والسكن...الخ، ففي التعليم الإلكتروني ستكون التكلفة أقل في الأمور السالفة الذكر، فلن تكون هناك مصاريف لأنشطة والسكن، إلى جانب ذلك فإن التعليم الإلكتروني يسمح باستيعاب آلاف الطلبة لأن الجامعة العالية الافتراضية تستطيع استيعاب أعداد هائلة من الطلبة وهو ما يوجب الدولة مصاريف طائلة في هذا الصدد.

التعليم الإلكتروني يفتح للطالب اختيار ما يناسبه من مواد دراسية وهو ما يتوافق مع مصالحه وحاجاته وكذا مهاراته.

التعليم الإلكتروني يشجع المتعلمين على التفكير والتعلم بشكل مستقل وتعاوني.

الفرع الثالث: متطلبات تطبيق التعليم الإلكتروني.
لقد أصبح التعليم الإلكتروني الجامعي واقعاً في العديد من الدول على غرار المملكة العربية السعودية، وقد أصبحت هناك مؤسسات متخصصة في توظيف هذا النوع من التعليم لخدمة التعليم العالي، مثل المركز الوطني للتعليم الإلكتروني، وكذلك وجود عدد من المراكز والعمادات المتخصصة في التعليم الإلكتروني على غرار عمادات التعليم الإلكتروني والتعليم عن بعد بجامعة الملك عبد العزيز، وجامعة الملك سعود، وجامعة الإمام محمد بن سعود، كما أن هناك مراكز للتعليم الإلكتروني في بعض الجامعات مثل جامعة الملك خالد، وقد بدأت هذه المؤسسات في مراحل عملية لإدخال التعليم الإلكتروني في الجامعات.

وتطبيق التعليم الإلكتروني في الجامعات لا بد من أن يعرف القانون على ذلك أن هذا يتطلب العديد من الاحتياجات والمطالب قسمها البعض لمطالب مباشرة ومطالب غير مباشرة نوردها على النحو التالي:

المطالب المباشرة:

- توفير الحواسيب لكل من المدرسین والطلبة وكذا في الفصول الدراسية والمخارب.
- يتعین توفير شبكة الانترنت في كل من مخابر الحاسوب واللغات.
- لابد من توافر أنظمة لإدارة الفصول.
- لابد من توافر برامج مساندة لبرامج التعلم.
- لابد من توافر الكتاب الإلكتروني الرقمي.
- لابد من توافر بوابة تعلیمية متخصصة تعمل من خلال الانترنت أو من خلال شبكة الحواسيب الجامعية الداخلية.
- لابد من توافر منظومة الإدارة التعليمية والمرتبطة بالسجلات.
- لابد من توافر منظومة للاختبارات التفاعلىة الإلكترونية.
- لابد من توافر منظومة فصول إلكترونية تفاعلىة لتحقيق بيئة تواصل تحاوري مباشر.
- لابد من توافر منظومة الربط الإلكتروني المباشر بين إدارات التعليم الموجودة في الدولة فيما بينها.

وبين الإدارات المتخصصة في وزارة التعليم العالي.

المطلب غير المباشرة:

- لابد من توفر برامج التدريب المستمر لأعضاء هيئة التدريس والإداريين على الاستخدام الأمثل لتطبيق أنظمة تقنيات التعليم الإلكتروني وتفعيلها.
- لابد من توفير بيئة تعليمية ملائمة متوافرة على متطلبات التقنية للأساتذة والطلبة.
- لابد من العمل على تهيئة الطلبة وتدريبهم على كيفية التعامل مع تكنولوجيا التعليم الإلكتروني.
لابد من العمل على توفير مصادر تعليم رقمية مرتبطة بمنظومة التعليم الإلكتروني.

لابد من العمل على توفير اشتراكات في مكتبات الالكترونية- محلية وعربية وأجنبية.

لابد من العمل على تطبيق أدوات وأنظمة تعليمية تنتمي بالمواصفات والمعايير العالمية.

لابد من العمل على توفير أنظمة وبرامج تحقق متطلبات ذوي الاحتياجات الخاصة.

لابد من أن يعمل جميع منتقسي المؤسسات التعليمية على استخدام نظم وأدوات التعليم الإلكتروني بشكلها المتكامل وفقاً لبرنامج التنفيذ المقترح.

لابد من تبني استراتيجية واضحة من قبل الإدارات المختصة في مؤسسات التعليم العالي بشأن تطبيق أدوات التعليم الالكتروني ووضع الولائج والتشريعات التي تنظم المتطلبات المعيارية في برنامج تنفيذ التعليم الالكتروني.

وهناك من حدد هذه المتطلبات بشكل آخر مركزاً على كل من البنية التحتية والموارد البشرية وإدارة التغيير.

وهكذا البيئة وذلك على النحو التالي:

1- البنية التحتية: وتتمثل هذه الأخيرة شبكة الربط التي ستصل المدارس والجامعات ببعضها والهيئة التي ستقوم عليها الشبكة، والتي تحدد أجهزة الربط الإلكترونية، وأجهزة الحاسوب التي ستستخدم للاتصال والتتصفح، ومن ثم البرمجيات التي ستتوفر التطبيقات التعليمية والتي ستسهل التعامل مع المحتوى التعليمي، وتتشمل البنية التحتية ما يلي:

- شبكة عالية القدرة: وهذا لضمان قدرة نقل عالية تضمن سرعة تحويل المناهج والتطبيقات وتبادل البيانات في حالات التعليم التفاعلي.

- هيئة تعتمد نظام Thin Client: ويمتعد هذا الأخير على مركزية المعالجة من خلال تسخیر أجهزة ذات قدرة حسابية وسعة تخزينية عالية وكذا أجهزة حواسب محمولة ذات قدرة محدودة، ويتطلب هذا النظام شبكة ربط عالية السعة لضمان سرعة انتقال التفاعلات والمحتويات عند الحاجة إليها عوضاً من الدخول في تعقيدات تحويل البرمجيات على الحواسيب المحمولة وصولاً إلى المحتويات، وتكلفة هذا النظام يتطلب استثماراً كبيراً في إنشاء شبكة عالية السعة، غير أن هذا لا يناسب الأنظمة المتعددة.

2- البرمجيات التعليمية: والتي توفر تطبيقات ل😄 إدارة التعليم، وإدارة المحتوى الإلكتروني، وأنظمة التعليم والسيطرة والمتابعة للشبكة.

- الموارد البشرية وإدارة التغيير: حتى يتم تطبيق التعليم الإلكتروني لابد من توفير عدد كاف من الموارد البشرية القادرة على متابعة النظام المتزامن للأطراف وصيانته، وضمان انسجام المعلومات في
جميع الاتجاهات داخل الشبكة، إلى جانب ما سبق يتعين أن يكون كل من الأستاذ والموظف قادرين على استخدام التكنولوجيا بوعي وبالشكل الذي يخدم العملية التعليمية، وذلك لأن دور الإبداع في أساليب التعليم واستغلال التقنيات ليس في حد ذاته غاية للحصول على المعرفة وإنما أيضا لتوليدها بحيث يصبح جزء لا يتجزأ من عملية التعليم.

البيئة الممكنة: والمقصود بهذه الأخيرة توفير بيئة تتوافر على الوعي الكامل بضرورة وأهمية مفهوم التعليم الإلكتروني على جميع المستويات، كما يتعين أن توفر الدعم والتعاون من قبل الجميع من أجل نجاحه، كما أنه يتعين العمل على إرساء قواعد التعليم الإلكتروني في كل المؤسسات التعليمية على اختلافها، وهذا تبرز الحاجة لوجود نظام تشريعي يعمل على توفير الرسالة القانونية التي تضمن نجاح تطبيق هذا الأخير.

وهناك من قام بتقسيم متطلبات تطبيق التعليم الإلكتروني الجامعي لمتطلبات يتعين توافرها في الأستاذ وأخرى واجبة التوافر في المتعلم وأخرى واجبة التوافر في طاقم الدعم التقني وكذا الطاقم الإداري المركزي نوجزها فيما يلي:

- المتطلبات الواجبة التوافر في الأستاذ:
  - القدرة على التدريس واستخدام تقنيات التعليم
  - المعرفة بكفاءة استخدام الحاسوب الآلي بما في ذلك الإنترنت والبريد الإلكتروني.

- المتطلبات الواجبة التوافر في الطالب:
  - مهارات التعلم الذاتي
  - معرفة استخدام الحاسوب بما في ذلك الإنترنت والبريد الإلكتروني.

- المتطلبات الواجبة التوافر في طاقم الدعم التقني:
  - التخصص الدقيق في الإعلام الآلي وكل ما له صلة
  - المعرفة برامج الإعلام الآلي التي يمكن استخدامها في تصميم وتقديم التعليم الإلكتروني.

- متطلبات واجبة التوافر في الطاقم الإداري المركزي:
  - الأجهزة الخدمية.
  - محطة عمل المتعلم.
  - مجموعة الشبكة الإلكترونية.
المطلب الثاني: النماذج التنظيمية للتعليم الجامعي الإلكتروني.

يجب أن يكون لدى التعليم الإلكتروني في الجامعات مناقشة هذه النماذج التنظيمية، والاختيار مناسبة حسب النماذج من خلال دراستنا في هذا المطلب باستخدام هذه النماذج على اختلافها باعتبار أن هذه الأخيرة تأخذ عدة أشكال مختلفة عن بعضها البعض وهي على النحو التالي: النموذج التنظيمي، النموذج البيداغوجي، النموذج الاجتماعي والأكاديمي، النموذج المهني والنموذج التقني ونموذج الجودة وهو ما سنقوم به في دراستنا وذلك في الفروع التالية:

الفرع الأول: النموذجين التنظيمي والبيداغوجي.

الفرع الثاني: النموذجين الاجتماعي والأكاديمي.

الفرع الثالث: النموذجين المهني والتقني.

الفرع الرابع: نموذج الجودة.

الفرع الأول: النموذجين التنظيمي والبيداغوجي.

سنقوم في هذا الفرع ببيان المقصود بكل من النموذج التنظيمي والبيداغوجي وذلك على النحو التالي:

أولا: النموذج التنظيمي.

توجد عدة نماذج مختلفة في التعليم عن بعد من بينها:

1. نموذج الانتتلاف: Consortium وهو اشتراك عدد من الجامعات والكليات في انتتلاف من خلال بوابة الإلكترونية تمكن الطلاب من اختيار البرامج والكلية المطلوبة، وتقوم الجامعة وليس الانتتلاف بمنح الدرجة العلمية.

2. نموذج الجامعة الافتراضية: جامعة دون مدينة جامعية (النموذج الثاني).

ثانيا: النموذج البيداغوجي.

يقصد بالنموذج البيداغوجي أصول ومبادئ علم التدريس (Pedagogy) التي يجب أن تكون جزءًا لا يتجزأ من عملية التخطيط لبرنامج التعليم الإلكتروني عن بعد، فالتعلم عن بعد ليس تقنيات فقط وإنما هو مزيج من التقنية والإدارة وعلم التدريس.
ويمثل النموذج البيداغوغي الملائم أحد أهم العوامل المهمة لنجاح البرامج التعليمية الإلكترونية، وعلى الرغم من أهمية هذا الأمر إلا أن الملاحظ أن العديد من مواد التعليم الإلكتروني ليست أكثر من ضخ للمعلومات وتصرف الكتروني ومحاضرات تقليدية على صفحات الإنترنت، لذا فإن العديد منها منخفض الجودة، وهو ما يشكل خطوة إلى الوراء في النظام التربيوي عوضا أن تكون إلى خطوة تحسينا لخطوات أخرى إلى الأمام.

وأما سبق يمكننا القول بأن أساليب التعليم وأنماط التفاعلات، الخ من القرارات المهمة في تصميم مقررات التعليم عن بعد ليست بالعشوائية، كما يتبعان أن لا تكون نتائج لاجهادات فردية، وإنما يتعين أن تستند إلى مبادئ علم التدريس، وغالبا ما توفر هذه المبادئ من خلال علم تطبيقي هو التصميم التعليمي الذي يعني بتوصيف مكونات العملية من خلال تصميم إجرائي هي نماذج التصميم التعليمي.

وتصنف هذه النماذج بناءً على أساسها الفلسفي والنظري إلى فئتين رئيسيتين هما: نماذج التصميم التعليمي السلوكية، ونماذج التصميم التعليمي البنائية، وهو ما يشير إلى نظريتين رئيسيتين هما: النظرية السلوكية والنظرية البنائية، أما الأولى تنطلق من الفلسفة الموضوعية التي تنظر بوجود الحقيقة على نحو موضوعي مستقل عن الخبرة الذاتية للفرد وبوجود حقيقة مشتركة يمكن نقلها للمتعلمين، تؤكد النظرية السلوكية على تطبيقات محدودة الخطوات مسبقا، وتجزئة المحتوى إلى أجزاء صغيرة.

أما النظرية الثانية (النظرية البنائية) تنطلق من الفلسفة الذاتية واقسم أنصارها لثلاثة اتجاهات هي: البنائية الفردية التي تؤكد أن بناء المعرفة ينتج عن التفسير الشخصي للخبرة، والبنائية الاجتماعية التي تؤكد أن التعليم هو عملية مشاركة وحوار اجتماعي يعتمد على وجهات نظر متعددة يتم من خلالها تكوين المعنى أو بناء المعرفة، والبنائية السياقية التي تؤكد على تقديم مهام التعلم في مواقف أصلية ودمج تقويم الأداء في هذه المهمة.

ويقول أنصار نظرية التعليم البنائية أهمية بناء المعرفة وليس قبولها فقط، وبأهمية التحكم الذاتي والتعلم التعاوني والاستكشاف الموجه والتقويم الأصيل.

الفرع الثاني: النموذجين الاجتماعي والأكاديمي.

سنقوم في هذا الفرع ببيان المقصود بكل من النموذج الاجتماعي والأكاديمي وذلك على النحو التالي:

أولا: النموذج الاجتماعي.
يرتبط هذا النموذج: بجانب هما:

1. الجمهور المستهدف من برنامج التعلم عن بعد، ونظرة المجتمع بقطاعه العام والخاص إلى مخرجات البرنامج، وهنا يتداول عن أي فئة من الجمهور يتبع أن توجه لها برامج التعليم الإلكتروني؟ وكيف يمكننا بعد ذلك أن نقطع قبول المجتمع لخريجي هذه البرامج؟

ثانيًا: النموذج الأكاديمي.

يتصل النموذج الأكاديمي بثلاثة قضايا مهما هي: البرامج الأكاديمية، والدرجات العلمية التي تقدمها الجامعة، وأسلوب تطوير مقررات التعلم الإلكتروني عن بعد، وستتناول كل منها على النحو التالي:

أ- البرامج الدراسية: تقدم استراتيجيات وكلات التعلم الإلكتروني عن بعد برامج دراسية متنوعة، بينما يقدم بعضها برامج محددة، تشترد الدراسات كما سيأتي بيانه إلى أن إدارة الأعمال وتقنية المعلومات والتربيه والدراسات الاجتماعية والصحية هي من بين أكثر التخصصات شيوعًا في التعليم الإلكتروني الجامعي.

ب- الدرجات العلمية: تقدم بعض جامعات التعليم عن بعد والجامعات التي تقدم تعليمًا الإلكتروني والمعتمدة جميع الدرجات العلمية تقريبًا بما في ذلك درجة الدكتوراه، إلا أن أغلبها يقدم درجات البكالوريوس وشهادات مهنية وعددًا أقل يقدم درجة الماجستير، والقليل جدًا يقدم درجة الدكتوراه.

ج- أسلوب تطوير مقررات التعلم الإلكتروني: يعد تطوير مقررات التعلم الإلكتروني أساس البرامج الدراسية لهذا التعلم بل وأساس منظومة التعلم عن بعد برمتها، ويمكن تحديد جانبين مهمين يتعلقان بقضية تطوير هذه المقررات هما:

1. داخلي (In House): وفي هذا الأخير تقوم وحدة خاصة في الجامعة نفسها بتطوير المقررات، أو أن عضو هيئة التدريس في الجامعة يقوم بتطوير مقرراته، ومثال ذلك جامعة يونيتار والتي كما سيأتي بيانه تعمل على تطوير مقرراتها بواسطة وحدة التطوير داخل الجامعة.

2. خارجي (Source-Out): وفي هذه الحالة تلجأ الجامعة على غرار جامعة جونز الدولية للتعاقد مع مؤسسة خاصة أو مستشارين خارجيين للعمل على تطوير مقرراتها.
الفرع الثالث: النموذجين المهني والتقني.

سنقوم في هذا الفرع ببيان المقصود بكل من النموذج الاجتماعي والأكاديمي وذلك على النحو التالي:

أولا: النموذج المهني.

يتصل النموذج المهني بهيئة التدريس التي يقع على عاتقها تدريس مقررات التعليم الإلكتروني وتفاعلاتها، وغالبية الجامعات التي تقدم هذا النوع من التعليم تتواجد على هيئة تدريس خاصة بها، ويكون هؤلاء إما متفرغين كليًا أو جزئيًا لهذه المهمة، وإلى جانب هؤلاء الأساتذة يوجد عدد من المساعدين الذين يقع على عاتقهم العديد من المهام لاسيما المتابعة والدعم.

ثانيا: النموذج التقني.

ما لا شك فيه أن التقنية بكل مكوناتها المختلفة من برامج وشبكات وكذا عتاد تشكل حجر الزاوية في برامج التعليم الإلكتروني إذا لم يكن لهذا الأخير أن تقوم له قائمة في غيابها، وفي هذا الصدد يمكن القول بأن المنظومة التقنية في التعليم عن بعد تعد إشكالية حقيقية، فمن جهة يعتمد عليها النظام بأكمله، ومن جهة أخرى فهي مكلفة، ليس هذا وحسب بل أن تبني تقنية معينة يقرر نوع نظام التوصيل.

إذا كان اختيار البرنامج يعتمد على العديد من الأمور على غرار طبيعة البرامج الدراسية وتفاعلاتها ونمط التعليم (تزاوني أو غير تزاوني)، بالإضافة إلى متغيرات الإثارة، والرخص، والشفافية، والتفاعل، والحضور الاجتماعي، وسلامة السطوح البيئية، والتكلفة، وخصائص المتعلمين... الخ، وهو ما يعني أن اختيار التقنية يعتمد على طبيعة النموذج البذائي إلى جانب وعوامل أخرى عديدة.

الفرع الرابع: نموذج الجودة.

في ظل عصر العولمة والانفتاح الاقتصادي، شهد السوق تضاعفًا كبيرًا في محاولة تقديم منتجات وخدمات تتميز بالجودة وتحوز على رضا المستفيدين، ومن هذا اكتسبت قضية الجودة أهمية كبيرة في السنوات الأخيرة، لاسيما لمنظمات القرن الحادي والعشرين.

وفي هذا الصدد نأخذ جامعات التعليم الإلكتروني كنموذج لهذا، حيث أن هذه الأخيرة ربحية كانت أو غير ربحية شهدت تنافسًا كبيرًا فيما بينها لاستقطاب الدارسين لذا أصبحت قضية الاعتماد الأكاديمي لبرامج
التعلم عن بعد تخضع لمدى معاييرها، ويشمل تطوير قياسات التعلم عن بعد (التصميم التعليمي)، معايير التعليم/التعلم، ومعايير دعم الطلاب، ومعايير دعم هيئة التدريس، ومعايير بنية المقرر، ومعايير التقويم، ومجالات معايير الجودة الخاصة بالتقنية المستخدمة. ويرتبط بجودة برنامج التعلم الإلكتروني عن بعد مؤشرات جودة هذا التعلم التي ينبغي تحديدها وتقييمها للتحقق من جودة التعلم. وأهم هذه المؤشرات هي: فاعلية التعلم التي يمكن قياسها كميةً من خلال التحصيل الدراسي، وقياس التكلفة مقارنة بالتعلم التقليدي، وقياس رضا الطلاب عن خبرات التعلم الإلكتروني عن بعد، وقياس رضا هيئة التدريس، وقياس نسبة التسرب وغيرها.

المبحث الثاني:

التعليم الإلكتروني في الجامعات العربية والغربية – دراسة مقارنة

هناك العديد من دول العالم المتقدمة منها والتي في طور النمو أو الدول النامية قامت بتجارب رائدة في مجال تطبيق أنظمة مختلفة للتعليم الإلكتروني وبدأت باستخدام وسائل عرض مساعدة على توضيح بعض المفاهيم وتجارب وانتهت بتطبيق أنظمة متطورة للتعليم الإلكتروني أو التعليم عن بعد، وسنقوم في هذا المطلب بالتعرض لبعض التجارب في التعليم الإلكتروني في عدد من الدول العربية والغربية بهدف المقارنة بينها ولهذا الغرض نقوم بتقسيم دراستنا على النحو التالي:

المطلب الأول: تجارب الجامعات في الدول المتقدمة.

المطلب الثاني: تجارب الجامعات في الدول العربية.

المطلب الأول: تجارب الجامعات في الدول المتقدمة.

إن من أهم سمات المجتمع المتحضر المحترم هو تحوله من كل ما هو تقليدي في الحياة إلى ما هو رقمي، والمتبع لما يحصل في تطور في العالم الرقمي يلاحظ أن هذا الموضوع يحظى باهتمام الدول على أعلى مستوياتها ضمن تخطيط محكم لنشر مجالات المعلوماتية بكافة نواحي الحياة، وفي هذا الصدد تجد الإشارة إلى أن التعليم عن بعد عرف مبكراً فقد ظهر في السودان في سنة 1833، وفي و.م.أ. في سنة 1883.

(539)
نجاح بعض تطبيقات التعليم الجامعي المفتوح منذ عام 1969م على غرار الجامعة البريطانية المفتوحة إلا أن السنوات الأخيرة شهدت نمو غير مسبوق في هذا النوع من التعليم. فعلى سبيل المثال، عقد في عام 1998م أكثر من (50) مؤتمرًا في التعليم عن بعد.

وستقوم من خلال دراستنا في هذا الفرع باستعراض تجارب عدد من الجامعات في الدول المتقدمة في مجال التعليم الإلكتروني وذلك على النحو التالي:

الفرع الأول: التجربة اليابانية.

الفرع الثاني: تجربة الولايات المتحدة الأمريكية.

الفرع الثالث: التجربة الماليزية.

الفرع الرابع: التجربة الأسترالية.

الفرع الأول: التجربة اليابانية.

بدأت التجربة اليابانية في مجال التعليم الإلكتروني في سنة 1994م، وكان ذلك بواسطة مشروع شبكة تلفزيونية تعمل على بث المواد الدراسية التعليمية بواسطة أشرطة فيديو للمدارس من خلال خطوة أولى في مجال التعليم عن بعد، وفي السنة الموالية بدأ اليابان بمشروع عرف باسم "مشروع المانحة مدرسة"، ولذا الغرض تم العمل على تجهيز المدارس بالإنترنت، وهذا بغرض تجريب وتطوير الأنشطة الدراسية والبرمجيات من خلال تلك الشبكة، وفي ذات السنة أعدت لجنة العمل الخاص بالسياسة التربوية في اليابان تقريرا لوزارة التربية والتعليم واقتشرت فيه قيام وزارة بتوفير نظام معلومات إقليمي لخدمة التعليم مدى الحياة في كل مقاطعة يابانية، بالإضافة لتوفير مركز لبرامج التعليم التعليمية إلى جانب إنشاء مركز وطني للمعلومات، وعمدت اللجنة كذلك لوضع خطط خاصة بتدريب أعضاء هيئة التدريس على التقنية الجديدة، وهو ما دعمته ميزانية الحكومة اليابانية للسنتين المالية 1996/1997 حيث أقر إعداد مركز برمجيات لكتب تعليمية في كل مقاطعة ودعم البحث والتطوير في مجال البرمجيات التعليمية، وكذا دعم كافة الأنشطة المتعلقة بالتعليم عن بعد وكذا دعم توظيف شبكات الإنترنت في المعاهد والكليات التربوية، وتشير إلى أن اليابان من الدول التي تطبق أساليب التعليم الإلكتروني بشكل رئيسي في معظم المدارس اليابانية.

الفرع الثاني: تجربة الولايات المتحدة الأمريكية.
لقد أثبتت في دراسة علمية أجريت في سنة 1993 أن نسبة 98% من مدارس التعليم الابتدائي والثانوي في الولايات المتحدة الأمريكية لديها جهاز حاسوب ألي لكل 9 طالب، أما في وقتنا الحاضر فإن الحواسيب متوفرة في جميع المدارس الأمريكية بنسبة 100 %، وتعد تقنية المعلومات لدى صناع القرار في الإدارة الأمريكية من أهم ست قضايا في التعليم الأمريكي، وبحلول سنة 1995 أكملت جميع الولايات الأمريكية خططها لتطبيق تقنية الحاسوب في مجال التعليم، وهنا بدأت و.م.أ بتطبيق منهجية التعليم عن بعد وتوظيفها في مدارسها، وعملت على تدريب الأساتذة لهذا الغرض، كما عملت على توفير البنية التحتية الخاصة بهذه العملية من حواسيب وشبكات ربط وبرمجيات تعليمية.

وسنقوم هنا بالتعرف على أجدد تجربة أحد أهم الجامعات الأمريكية وهي جامعة جونز الدولية، وذلك في النقاط الأساسية التالية:


- المستهدفون: تركز الجامعة على خدمة المتعلم من الكبار على مستوى العالم، وتعمل على توفير تعليم ذو مستوى عالي من الجودة بالنسبة لسوق العمل.

- التنظيم القانوني: هي جامعة خاصة وربحية، لا تقدم تعليما فرديا ووجها لوجه، لا تتبع أي جامعة.

- النظام المبتاع في التعليم: تعتمد الجامعة في التعليم على تقنية الاتصالات والتواصلات غير التزامية، على الشبكة العنكبوتية، على غير نظام نقل Delivery System للتعليم والتعلم.

- البرامج الأكاديمية: توفر الجامعة برامج أكاديمية ببلغ عدها 24 وتمت برامج مختلفة من بينها العلوم والتكنولوجيا، وإدارة تقنية المعلومات، العلوم الاجتماعية، إدارة الأعمال، الإدارة التربوية... الخ.

جامعة فونكس:

- التأسيس والاعتماد: تعد ثاني أكبر الجامعات الخاصة في University Of Phoenix Online و.م.أ، حصلت هذه الأخيرة كذلك اعتبارها من قبل مفوضية التعليم العالي، يقع مقرها في ولاية أريزونا.

- المستهدفون: تركز الجامعة على خدمة المتعلمين من الكبار والذين هم على رأس العمل، حيث تستقطب الطلاب الذين تتراوح أعمارهم بين 35 و39 سنة.
التنظيم القانوني: جامعة خاصة وربحية.

النظام المتبقي في التعليم: تعتمد الجامعة في التعليم على تقنية الاتصالات والتفاعلات غير التزامنية على الشبكة العنكبوتية كأسلوب رئيسي، كما أنها توفر دعما محدودا للاتصال وجها لوجه أحيانا.

البرامج الأكاديمية: توفر الجامعة تخصصات مختلفة كالمحاسبة، وإدارة الأعمال والعلوم، الصحة والتمريض، التجارة الإلكترونية...الخ.

بعد استعراضنا لنموذج عن التعليم الالكتروني في الولايات المتحدة الأمريكية نورد نماذج أخرى فكندا، وهما:

جامعة حكام الولايات الغربية:


المستهدفون: تركز الجامعة على خدمة المتعلم من الكبار والذين هم على رأس العمل، وتقوم بالتركيز على توفير فرص التعليم المستمر لمواجهة تحديات التغير الاقتصادي والاجتماعي.

التنظيم القانوني: تعد هذه الأخيرة تجمعًا لجامعات في 19 ولاية أمريكية من بينها: تكساس ويوتا وأريزونا وكولورادو. كما أن هذه الأخيرة ليست بذات طابع ربحي، تحصل الجامعة على دعمها من قبل Microsoft.

- يتولى إدارة الجامعة ممثلي حكام الولايات المشاركة وقادة قطاع الصناعة.
- للجامعة هيئة استشارية من شركات ومؤسسات خاصة.

- الجامعات الأعضاء هي فروع لجامعات تقليدية.

النظام المتبقي في التعليم: تعتمد الجامعة في التعليم على التفاعلات غير التزامنية على الشبكة العنكبوتية.

البرامج الأكاديمية: تعمل الجامعة على توفير ثلاثة برامج رئيسية هي: الإدارة (إدارة الأعمال، إدارة المصادر البشرية، وتقنية المعلومات)، الإدارة (إدارة تقنيات المعلومات وإدارة الشبكات)، التربية (طرق تدريس العلوم والرياضيات).
تطوير المقررات: وتعد هذه الأخيرة على تقديم تعليم معتمد على الكفاءات بواسطة الإنترنت، وأسلوب التقييم المعتمد على الأداء حيث يتعين على الطالب اجتياز سلسلة من الاختبارات وبناء عليها تحدد المقررات المناسبة لهم.

المستهدفون: تهدف الجامعة لجمهورا عريضا من خريجي الثانوية والتعلم على رأس العمل.

النظم المتبع في التعليم: تقدم الجامعة بعض المقررات والبرامج كلها على الإنترنت من خلال التفاعلات التزامنية وغير التزامنية، كما تستخدم كذلك أساليب الرسالة والمؤتمرات عن بعد والأنشطة الصوتية.

البرامج الأكاديمية: توفر الجامعة العديد من المقررات الدراسية في برامج متنوعة من بينها: الإعلام الآلي، وإدارة عامة، محاسبة إدارة أعمال، ونظم المعلومات..الخ.
الفرع الثالث: التجربة الماليزية.

في ماليزيا عمدت لجنة التطوير الشامل الماليزية في سنة 1996 بوضع خطة تحمل الرمز "Vision 2020" بموجب هذه الخطة التقنية تصبح ماليزيا في مصاف الدول المتقدمة، ورمز للتعليم في هذه الخطة بـ "The Education Act 1996"، وكان الهدف من هذه الأخيرة العمل على إدخال الحواسيب الآلية والارتباط بشبكة الإنترنت في كل فصل دراسي، ولولا الزيادة الاقتصادية لسنة 1997 كان النتائج ستتم قبل حلول سنة 2000، وعلى الرغم من ذلك بلغت نسبة المدارس المرتبطة بشبكة الإنترنت في ديسمبر سنة 1999 أكثر من 90 %، وفي الفصول الدراسية 45%. وشهد ماليزيا لتعزيز هذا النوع الأخير في جميع أرجاء البلاد، وأطلق على المدارس التي تطبق التقنية في الفصول الدراسية "المدارس الذكية Schools Smar".

وفيما يتعلق بالبنية التحتية فقد قامت ماليزيا بربط جميع المدارس والجامعات بشبكة "الإنترنت" تسمح بنقل حزم المعلومات الكبيرة لخدمة نقل الوسائط المتعددة والفيديو.

وسنقوم هنا بالعرض لبعض أهم الجامعات الماليزية وهي جامعة يونيتار وذلك في النقاط الأساسية التالية:


- المستهدفون: جمهورها متنوع، غير أن برامجها تستقبل المتعلمين الكبار ممن هم على رأس عمل.

- التنظيم القانوني: هي جامعة خاصة وربحية، تقدم تعليم إلكتروني فقط.

- النظام المتبع في التعليم: تعتمد الجامعة على أساليب في التعليم، أولهما: تفاعلات غير تنزامية (أحيانا تنزامية) على شبكة الإنترنت، ثانياهما: التفاعلات وجها لوجه بين المتعلمين والمدرسين في قاعات التدريس الخصوصي وفي مراكز الدراسة في المقر الرئيسي Kelana Jaya والفرع الأخرى التابعة لها Sarawak, Sabah, Benenang, Berak, Sambilan, Kelantan المتعددة من خلال الأقراص المدمجة.
البرامج الأكاديمية: تعمل الجامعة على توفير تخصصات كثيرة على غرار: تقنية المعلومات، إدارة الأعمال، إدارة عامة، تجارة إلكترونية...

الفرع الرابع: التجربة الأسترالية.

بالنظر لما تحوّيه استراليا من وزارات التربية والتعليم ففي كل ولاة وزارة مستقلة لذا هناك تفاوت في مجال استخدام تقنية المعلومات في التعليم من ولاية لولاية، وفي الدراسة والتعليم الخاصة بها خطة لتطوير التعليم وإدخال التقنية فيها وكان ذلك في سنة 1996 على أن تنتهي هذه الخطة حسب البرنامج الزمني لها في نهاية سنة 1999 بعد أن تكون كل مدارس الولاية قد ربطت بشبكة الإنترنت عن طريق الإنترنت الصناعي وهو ما تم بالفعل، وفي هذا الصدد وفي سابقة فريدة اتخذت ولاية فكتوريا إجراءا فريدا يمثل في إجبارها للأساتذة الذين لا يرغبون في التعامل مع الحاسوب على التقاعد المبكر، وهو ما تم بالفعل حيث تقاعد ما يعادل نسبة 24% من الأساتذة وتم استبدالهم بغيرهم، وتعتبر تجربة فكتوريا من التجارب النادرة على المستوى العالمي من حيث السرعة والشمولية فقد أصبحت التقنية متوفرة في كل فصل دراسي وكانت محل إشادة من قبل العديد على رأسهم رئيس شركة ماكروسوفت عندما قام بزيارتها.

وفي التجربة الاسترالية نأخذ جامعة جنوب كويزناندا كنموذج للدراسة والتحليل وذلك على النحو التالي:


المستهدفون: توجه الجامعة برامجها للكبار (29-45) سنة والذين يمثلون أكثر من 75% من إجمالي عدد طلاب الجامعة الأم.

التنظيم القانوني: تعد هذه الأخيرة جامعة خاصة وكذا ربحية.

النظام المتبع في التعليم: تعتمد هذه الأخيرة على تقنيات الجيل الرابع المتمثلة في الوسائل التفاعلية الانتشارية على الإنترنت، كما توفر الجامعة للطلاب فرصا للاتصال والتعلم وها لوجه من خلال مراكز التعلم عن بعد.

البرامج الأكاديمية: توفر هذه الأخيرة 48 برنامجا و 180 مقرر دراسي عن طريق الإنترنت في مجالات أهمها: إدارة الأعمال، الاقتصاد، التربية...الخ، وحصلت الجامعة على شهادة الجودة في سنة
1997 في مجالات مثل: تصميم وإنتاج المقررات، تقويم التعليم عن بعد، إدارة المشروع، بحوث التصميم التعليمي... الخ.

جامعة كولموز:

- التأسيس والاعتماد: أُنشأت جامعة كولموز الوطنية الأرجنتينية منذ سنة 1998 برنامج افتراضي باسم Universidad Virtual De Quilmes.

- من خلال اتفاقية التعاون المبرمة مع جامعة كاتالونيا الإسبانية بدأت الجامعة في برامجها سنة 1999.

- المستهدفون: توجه الجامعة برامجها للكبار (30-50 سنة).

- التنظيم القانوني: هي جامعة غير ربحية تقدم نمط تعليم مزدوج تقليدي ووجها لوجه، كما تقدم تعليم افتراضي كامل.

- النظام المتبع في التعليم: تنفذ العملية التعليمية من خلال تفاعلات غير تزامنية على الشبكة.

- البرامج الأكاديمية: توفر الجامعة برامج متعددة كإدارة الأعمال، المحاسبة، العلوم الإنسانية والاجتماعية، التربية، التجارة الدولية... الخ.

جامعة كاتالونيا:

- التأسيس والاعتماد: تأسست University De Cataluny في سنة 1995 وبدأت الجامعة عملها في إقليم كاتالونيا الإسبانية ثم بعد ذلك عمدت لتوسيع عملها لتعمل على المستوى القومي، وقد تم اعتمادها من قبل الحكومة الإسبانية.

- المستهدفون: المتعلمون من كبار السن (25-45 سنة)، ونسبة العاملين 93%.

- التنظيم القانوني: تعد جامعة كاتالونيا جامعة خاصة وغير ربحية.

- النظام المتبع في التعليم: تنفذ العملية التعليمية من خلال تفاعلات غير تزامنية والتي تدعم بقاءات في مركز الدراسة، واتصالات غير تزامنية.

- البرنامج الأكاديمية: تركز الجامعة على البرامج التي لا تقدمها الجامعات التقليدية على غرار: إدارة الأعمال، القانون، العلوم التطبيقية، الإعلام الألتي.

- تطوير المقررات: وتم عملية تطوير المقررات من قبل هيئة تدريس متفرغة تفرغًا تاما، كما عمدت الجامعة لإنشاء شركة خاصة بها لهذا الغرض تتعاون مع هيئة التدريس.
المطلب الثاني: تجارب الجامعات في الدول العربية.

سنقوم في هذا الفرع بالعرض لبعض تجارب الجامعات العربية في مجال التعليم الإلكتروني، والذي أصبح غاية وهدفه تسعى كل مؤسسة تعليمية متقدمة لتوظيفه، وحتى الدول العربية هي الأخرى بدأت تولي هذا الأخير أهمية بالغة وتشارك في تطبيقه بعد أن بدأت العمل على توفير متطلباته لاسيما تتعلق منها بالبنية التحتية، وسنقوم من خلال هذا المطلب بعرض نماذج لتجارب لجامعات عربية في مجال التعليم الإلكتروني، لننتهي في النهاية بإجراء مقارنة بينها وبين الجامعات الأجنبية التي درستنا في المطلب السابق وسنقوم بتقسيم دراستنا وذلك على النحو التالي:

الفرع الأول: التجربة السودانية.

الفرع الثاني: تجربة الجامعة الإسلامية بغزة.

الفرع الثالث: تجربة الجامعة السورية والجامعة السعودية.

الفرع الرابع: تجربة الجامعة التونسية والجزائرية.

الفرع الخامس: تجربة جامعة حمدان بن محمد الإلكترونية.

وستقوم من خلال دراستنا للعربية السودانية في مجال التعليم الإلكتروني بعرض نماذج تجارب جامعة الخرطوم والجامعة السودانية المفتوحة وذلك على النحو التالي:

أولا: جامعة الخرطوم.

قامت جامعة الخرطوم بتأسيس وحدة التعليم عن بعد في مارس سنة 1999، وألحقت هذه الأخيرة بكلية الدراسات التقنية والتنموية، وكان الهدف من خلال هذه الأخيرة هو العمل على تشغيل كليات الجامعة على الدخول في التعليم المفتوح والاستفادة من تقنيات التعليم الإلكتروني، بهذا الغرض عملت الجامعة على عقد العديد من الندوات وورش العمل والدورات التدريبية، ووجهت المخرجات المطلوبة، وتشملت البرامج التدريبية ما يلي:
تدريب الأساتذة على تصميم وكتابة المواد التعليمية للتعليم عن بعد.
- إنتاج المواد التعليمية المرنية.
- تصميم وإنتاج المواد التعليمية عن طريق الإعلام الآلي والتقنيات الملحة به.

بحلول سنة 2001 عقدت الجامعة وبالتعاون مع منظمة SOLO ورشة عمل بكلية الدراسات التقنية والتنموية وجلبت خبراء أجانب و فلاستفادة رشحت كليات الجامعة عضوين من أعضاء هيئة التدريس لحضور الورشة والتي ركزت على التدريب العملي على كتابة وتحرير المواد المكتوبة، في مرحلة لاحقة أجازت الجامعة تطبيق تقنية التعليم الإلكتروني كأحد نظم بث المعلومات وذلك في البرامج التالية: المحاسبة والإدارة المالية، برنامج إدارة الأعمال المطروحة من قبل كلية العلوم الرياضية، برامج الغابات المطروحة من قبل كلية علوم الغابات، برامج كلية التربية، برامج دراسة الحاسوب التطبيقية.

ومن التكنولوجيات الإلكترونية التي استفادت منها جامعة الخرطوم في تنفيذ برامجها ما يلي:

- الشبكة المحلية LAN وخدمة الإنترنت والتي أدخلت في سنة 1998، وربط الجامعة بالعالم الخارجي والتعمل من تقنية تبادل المعلومات طبيعة الجامعة تكنولوجيا عالية الكفاءة تعرف ب: Zaknet والتي تتميز بسرعة تبادل البيانات 196KPs و تستقبل المعلومات عن طريق طبق موجه للقرر الصناعي Asia 2. وبذلك تمكنت الوحدة من توفير خدمة الكترونية تكفي جميع كليات ومراكز جامعة الخرطوم.

- تقنية المؤتمرات المرنية Video Conferences
- الخدمات المباشرة Online Services
- خدمات المناقشة الفورية Online Duscissions
- المكتبة الإلكترونية التي بدأ العمل فيها منذ سنة 1999.

ثانيا: الجامعة السودانية المفتوحة

التأسيس والاعتماد: تكاملًا مع الدور الذي يقدمه التعليم المُقِيم فقد أصدر مجلس الوزراء الموفر قراره رقم (164) في أبريل 2002م الموافق 2 صفر 1423ه بمجردة مشروع جامعة السودان المفتوحة. ثم ثل ذلك إجازة قانون الجامعة من قبل المجلس الوطني في جلسته رقم (11) من دوره الانتقادات السابع بتاريخ 9 ربيع أول 1425ه الموافق 28 أبريل 2004م ، وفي العام نفسه تمت إجازة مشروع الهيكل
التنظيمي للجامعة الذي جاء مطابقاً لكثرة مما ورد في قانون الجامعة المجاز لسنة 2004م، والذي يتكون من تسع إدارات وأمانات، ثم بدأت الجامعة في استكمال هيكلها استعداداً لما تحتاجه من القوى العاملة كماً ونوعاً، وبو ضوء النظم الأساسية واللوائح التي تحقق الاستقرار الوظيفي.

المستهدفون: تعمل جامعة السودان المفتوحة على توفير فرص واسعة ومفتوحة لفئات مختلفة من طالبي التعليم الجامعي، بالإضافة إلى خريجي المرحلة الثانوية الذين لا يجدون فرصاً للاستيعاب في الجامعات التقليدية المقيمة. تتيح الجامعة - بصفة خاصة - فرصاً واسعة لاستيعاب الفئات الآتية:

1. العاملين في قطاع الخدمات الفنية والإدارية والعسكرية والنظامية الأخرى الذين لا يستطيعون ترك مسؤولياتهم، ولا التقديم بنظام الجامعة التقليدية المقيمة، ويرغون في دعم اختصاصاتهم أو إضافة مهارات أخرى إلى مهاراتهم القائمة.

2. فئات مجتمعية تكون موقعها الجغرافيا بعيداً عن أماكن وجود الجامعات المقيمة، وتلزمها مهامها الأسرية والحياتية والاجتماعية بالبقاء في مواقعها.

3. النساء اللواتي لا يسعدهن وضعهن الاجتماعي والثقافي على التعليم الجامعي، وكذلك ربات البيوت اللواتي يصعب عليهم ترك مسؤولياتهن في تربية الأطفال والقيام بأعباء الأسرة ومهامها.

4. معلمي مرحلة التعليم الأساسي من مسولي وزارة التربية والتعليم الذين تبعتهم لنيل البكالوريا التربوية.

5. الراغبين من غير مسولي وزارة التربية والتعليم، في الحصول على البكالوريا التربوية للتدريس في مرحلة التعليم الأساسي.

6. فئتين من معلمي المرحلة الثانوية، تُوجهُ إحداهما مواد تعليمية خصوصاً في البكالوريا من تدريسها في المرحلة الثانوية ولكن ينقصها الإعداد المهني، والفئة الأخرى لا تؤهلها مواد تخصصها في البكالوريا من تدريسها في المرحلة الثانوية (فترة المعلمين البدلاء) وينقصها الإعداد المهني. ترغب الفئة الأولى في الحصول على دبلوم التربية، والفئة الثانية في الحصول على البكالوريا المهنية الأكاديمية.

7. المغتربين الذين تحول قوانين البلدان التي يقيمون فيها دون الحصول على تعليم جامعي، أو الذين يرغبون في الحصول على التعليم الجامعي المطفي في السودان.

8. حفظة القرآن الكريم وغيرهم من العاملين في مجال الدعوة الذين يرغبون في الحصول على دبلوم الدعوة.
التنظيم القانوني: تعد جامعة الخرطوم جامعة حكومية.

النظام المتبوع في التعليم: تعتد الجامعة على البث المسموع والسعي البصري في اتجاه واحد، ويشمل البث الإذاعي والتلفزيوني، وتستمد كذلك على شبكة الاتصالات الدولية (الإنترنيت والبريد الإلكتروني وأنظمة التعليم الإلكتروني) التي تمكن الطلاب من الاطلاع على المواد التعليمية باستخدام الحواسيب الشخصية والاتصال فيما بينهم، أو بينهم وبين الجامعة.

كما قامت الجامعة بفتح عدد (21) واحدة وعشرين منطقة تعليمية تقع في (19) تسع عشرة ولاية من ولايات السودان، في كل منطقة تعليمية يوجد عدد من المراكز، تعمل على تزويذ الطلاب بالمواد التعليمية المطبوعة والمسموعة وسمعية بصريّة، وإتاحة اللقاءات الافتراضية التي تم تحت إشراف مشرفين أكاديميين، بالإضافة إلى الاستعانة من البنية التحتية الحاسوبية والشبكة الموجودة في المناطق التعليمية ومراكزها.

وستسع بإذن الله تعالى دائرة المناطق التعليمية ومرازها الدراسية لتشمل كافة ولايات السودان وخارجها.

البرامج الأكاديمية: تقدم الجامعة برامج في كل من التربية، الإعلام الآلي وتقنية المعلومات، العلوم الإدارية، اللغات، القانون.

الفرع الثاني: تجربة الجامعة الإسلامية بغزة

بدأت الجامعة الإسلامية بالتعرف على برامج التعليم الإلكتروني بعد أن شهدت العديد من التجارب التي تضمنت إنشاء صفحات خاصة لم.datasets في كليات الهندسة والعلوم وتزويدها بالمصادر التعليمية وإتاحتها للطلبة المسجلين فيها، وتعرف الجامعة على برامج التعليم الإلكتروني بمفهومه الواسع كان مع عقد دورة LMS

WebCT

للإدارة العليا للجامعة الإسلامية في سنة 1999 في استخدام الشبكة، ثم بعد ذلك جاء عدد من المشاريع صغيرة لمولة من قبل جهات خارجية تضمنت تدريب عدد من أعضاء الهيئة التدريس وكذا عدد من الطلاب و الإمام المختبرات اللازمة للتعليم الإلكتروني، كما أن الجامعة نظمت العديد من ورشات التدريب في التعليم الإلكتروني من تمويلها الخاص.

وقامت الجامعة في مرحلة لاحقة وبالنظر لما حققته في مجال التعليم الإلكتروني لاستحداث منصب نائب الرئيس لتقنية المعلومات ومساعدين له في مجال التعليم الإلكتروني والتقنية الأكاديمية وكذا في المجال الفني، وسعا منها لمواكبة التطور العالمي في مجال التعليم الإلكتروني تسعى الجامعة للحصول على Class Rooms Smart والقاعات الذكية Rooms Smart.
ويمكننا إيجاد الإنجازات التي حققتها الجامعة الإسلامية في مجال التعليم الإلكتروني في النقاط التالية:

- توفير برامج أنظمة إدارة التعليم الإلكتروني (LMS) مثل Moodle و WebCT
- تأهيل فريق من المدربين المتخصصين في استخدام وإدارة برامج WebCT و Moodle
- تدريب أكثر من 30% من أعضاء الهيئة التدريسية على استخدام WebCT
- تطوير مهارات الأساتذة من خلال تدريبهم في مجال استخدام التكنولوجيا في التعليم
- تدريب مناهج الطلاب والطالبات على استخدام برامج التعليم الإلكتروني.

- تصميم 160 مساق إلكتروني ونشره من خلال WebCT
- تجهيز ثلاث مختبرات حاسوب لاستخدامها في التعليم الإلكتروني.
- عقد العديد من الورشات والمحاضرات بهدف تعزيز ثقافة استخدام التكنولوجيا في التعليم وتدريب الأساتذة على تصميم مساقاتهم على الشبكة.

- تقديم العديد من المشاريع لتمويل عمليات التدريب والتطوير وتكوين البنية التحتية لتعليم الإلكتروني.
- القيام بعدة دراسات تتعلق بإستراتيجية الجامعة الإسلامية بغزة لتقنية التعليم والتعليم الإلكتروني.

وفي سنة 2009 أعلنت وزارة التربية الوطنية والتعليم العالي الفلسطينية عن إطلاق مشروع حاسوب محمول لكل طالب بهدف تعزيز استخدام التكنولوجيا في العملية التعليمية وإحداث النوعية في العملية التعليمية باستخدام وسائل التكنولوجيا والتقنيات التربوية الحديثة وتمكين الطلبة من الدخول للعالم التكنولوجيا في سن مبكرة وقد استطاعت وزارة التربية والتعليم الحصول على 1000 جهاز حاسوب من نوع OLPC - XO - لدعم من مؤسسة American Task Force on Palestine - XO، و التي تم توزيع بعضها على المدارس المستهدفة.

- تقوم الوزارة الآن بتذوي المعلمين على استخدام هذه الأجهزة، و يقدر عدد المعلمين المستهدفين للتدريب حوالي 10000 معلم في المرحلة التمهيدية من هذا البرنامج على مدى ثلاث سنوات ابتداء من العام 2009 وتسعى الوزارة دائما لتقدم للحصول على المزيد من أجهزة الحاسوب
- الرخيص الثمن والمصممة خصيصًا لبرامج "جهاز حاسوب لكل طالب".

الفرع الثالث: تجربة الجامعة السورية والجامعة السعودية.
سنتناول في هذا الفرع التعرض لبيان تجربة كل من سوريا والمملكة العربية السعودية في مجا التعليم الإلكتروني وذلك على النحو التالي:

أولا: تجربة الجامعة السورية.

قامت وزارة التعليم العالي السورية بإعلان إطلاقها لأول جامعة افتراضية وهي الجامعة السورية الافتراضية وتتلقى هذه الأخيرة دعما حكوميا من وزارة التعليم السورية، وتم الاعتراف لها بمساقاتها الدراسية من قبل وزارة التعليم العالي، وعقد العديد من الجامعات مع هذه الأخيرة شراكات تعاون أكاديمية من أجل أن تقدم هذه الأخيرة خدماتها على أكمل وجه، ولهذا الغرض وقعت الجامعة 16 اتفاقية شراكة مع جامعات عالمية.

وقامت الجامعة بالتعاقد مع 40 جامعة عالمية من و.م.أ وأوروبا وهي جامعات تمنح شهادات في البكالوريوس والماجستير والدكتوراه في ما يقرب 300 اختصاص، وهنا يقوم فريق من الجامعة الافتراضية بتنسيق عمليات تسجيل الطلبة ويساعده في اختيار الاختيار المناسب، وبعد الانتهاء من عملية التسجيل يخصص للطالب مشرف يتابعه منذ فترة تسجيله وحتى تخرجه، حيث يقوم هذا الأخير بالإشراف ومتعاون مع مجازات دراسته، ومناقشته وتوجيها فيما يتعلق شبكة الإنترنت، ويقدم له النصائح العلمية ويبن له كيفية الاختيار المناسب للمواد الدراسية، ويقدم الإجابة على الأسئلة والحلول المناسبة، وتتوفر الجامعة على مكتبة كهربائية تضمن حوالي 200 مليون عنوان في مجالات مختلفة.

ونقوم في النقاط التالية بإيجاز المعلومات المتعلقة بالجامعة السورية الافتراضية وذلك على النحو التالي:

- التنظيم والاعتماد: تأسست الجامعة في سبتمبر 2002 وهي معتمدة من قبل وزارة التعليم العالي السورية، وتعتبر أول جامعة افتراضية في العالم العربي والشرق الأوسط.
- المستهدفون: المستفادون من برامج الجامعة هم جمهور متعدد من خريجي الثانوية والكبار ممن يرغبون في التعليم الجامعي.
- التشريع القانوني: تعمل الجامعة الافتراضية السورية كوسط بين المتعلمين والجامعات الأمريكية والأوروبية والاسترالية من خلال البوابة الإلكترونية، وتتم هذه الأنشطة جامعة حكومية وغير ربحية.
- البرامج الأكاديمية: تتطلب الدراسة أولا سنة تعليمية يتم فيها تهيئة الطالب فيما يتعلق بمهارات اللغة الإنجليزية والإعلام الألي، بعد ذلك يتم تقرر البرنامج بناء على امتحان قبلي.
تطوير المقررات: مصدر المقررات ومحتوى البرامج وكذا تدريسها خارج تعلم الجامعات الأجنبية الأعضاء في الشراكة على توفيره، وتقوم الجامعة بتوفير خدمات الدعم الفني والأكاديمي وكتبة افتراضية...

ثانيًا: تجربة الجامعات السعودية.

اهتمت وزارة التعليم العالي بالمملكة العربية السعودية بتقنيات التعليم الحديثة وهي تسعى لتطبيقها، ولهذا الغرض عملت على تشكيل فريق عمل من المختصين والخبراء لوضع مخطط لإدخال التعليم الإلكتروني والتعليم عن بعد. وبعد ذلك تم إنشاء المركز الوطني للتعليم الإلكتروني والتعليم عن بعد، ويتم من خلال الاستخدام الأمثل لتقنيات المعلومات، ويسهم في تطوير المقررات الأساسية في تعليمات وبرامج التعليم الإلكتروني، وتسهيل تواصلها التعليمي من خلال استخدام البيئات التعليمية المتاحة.

وقد وضعت أهدافه على النحو التالي:

- نشر تطبيقات التعليم الإلكتروني والتعليم عن بعد في مؤسسات التعليم الجامعي بما يتوافق مع معايير الجودة.
- الإسهام في تقويم مشروعات وبرامج التعلم الإلكتروني والتعليم عن بعد.
- دعم الأبحاث والدراسات في مجال التعليم الإلكتروني والتعليم عن بعد.
- وضع معايير الجودة النوعية لتصميم المواد التعليمية الرقمية والجودة ونشرها.
- تقديم الاستشارات ذات العلاقة في مجال التعليم الإلكتروني والتعليم عن بعد.
- بناء البرامج التعليمية وتعميمها لخدمة العملية التعليمية على القطاعين العام والخاص.
تشجيع المشروعات المتميزة في مجال التعليم الإلكتروني والتعليم عن بعد في مؤسسات التعليم الجامعي.

- التعاون الدولي مع المنظمات والهيئات العالمية والجهات ذات العلاقة بمجالات التعليم الإلكتروني والتعليم عن بعد.

الفرع الرابع: تجربة الجامعة التونسية والجزائرية.

سنقوم من خلال هذا الفرع باستعراض تجربة كل من الجمهورية التونسية والجزائرية تباعًا في مجال التعليم الإلكتروني وذلك على النحو التالي:

أولا: تجربة الجامعة التونسية.

وسنتناول التجربة التونسية في مجال التعليم الإلكتروني في النقاط التالية:

- المستهدفون: تهدف الجامعة لخدمة جمهور متنوع لاسيما ممن هم خارج دامرة طلبة الجامعات التقليدية.
- النظام القانوني: تعد الجامعة حكومية وغير ربحية.

النظام المنبع في التعليم: تستخدم الجامعة شبكة الإنترنت وتتوفر للمستخدمين Website يسمح للمتعلمين بالاتصال عن طريق البريد الإلكتروني ومنتديات المناقشة مع المدرس المساعد، وجرى عمليات التسجيل والتدريس الالكترونيا.

البرامج الأكاديمية: تركز الجامعة على 3 أنواع من التعليم: تخصصات جامعية، وتعليم مستمر، وتعليم مدى الحياة، وبدأت تجريتها بمجال إدارة الأعمال.

ثانيا: الجزائر والتعليم الإلكتروني.

قصد تخفيف نواقص التأطير، من جهة ومن أجل تحسين نوعية التكوين تماسكًا مع متطلبات ضمان النوعية، تم إدخال طرق جديدة للتكوين والتعليم، تتضمن إجراءات بيادعجية جديدة خلال مسار التكوين، لهذا تم إطلاق المشروع الوطني للتعليم عن بعد والذي يرمي إلى تحقيق أهداف تتوزع على ثلاثة مراحل:
المرحلة الأولى: وهي مرحلة استعمال التكنولوجيا، المحاضرات المرئية على الخصوص، قصد امتصاص الأعداد الكبيرة للطلاب، مع تحسين محوسب لمستوى التعليم والتكوين (سباق على المدى القصير).

المرحلة الثانية: تشهد اعتماداً على التكنولوجيات البييوغوجية الحديثة، تعتمد خاصة على الويب (التعلم عبر الخطر أو التعليم الإلكتروني)، وذلك قصد تحقيق ضمان النوعية (سباق على المدى المتوسط).

المرحلة الثالثة: هي مرحلة التكامل، وخلالها يصاعد على نظام التعليم عن بعد ويتم نشره عن طريق التعليم "من بعد" بواسطة قناة المعرفة، التي يتعدى مجال استعمالها والاستفادة منها بكثير النطاق الجامعي، حيث تستهدف جمهوراً واسعاً من أفراد المجتمع: أشخاص يريدون توسيع معارفهم، أشخاص يحتاجون لأمور متخصصة، أشخاص في العقد الثالث من أعمارهم، مرضى متواجدون في المستشفيات، أشخاص في فترة النقاهة...

ويرتبط التعليم عن بعد حالياً على شبكة منصة للمحاضرات المرئية و التعليم الإلكتروني، موزعة على غالبية مؤسسات التكوين، والدخول إلى هذه الشبكة ممكن عن طريق الشبكة الوطنية للبحث (ARN).

الهيكلة الشاملة لمنصة التعليم الإلكتروني
عدد المؤسسات المعنية بالمشروع 77، وبعد مركز البحث العلمي والتكنولوجي Cerist، النقطة المركزية في المشروع، وهناك 13 موقع مسلسل مستقبلي، و64 موقع مستقبلي. ( للإطلاع على هذه المواقع يرجى الرجوع للملحق الجدول رقم 1، 2.)

برنـامـم التعلـم عن بـعد :

 ضمن "التقرير الأولويات والتخطيط لسنة 2007 والذي تم إعداده في سبتمبر 2006، سجلت وزارة التعليم العالي والبحث العلمي برسم "الأهداف الاستراتيجية 2007-2008-2009" هدفين استراتيجيين فيما يخص تكنولوجيات الإعلام والاتصال وهما:

1. ضبط نظام الإعلام المتكامل للقطاع.

2. إقامة نظام للتعليم عن بعد كدعم للتواصل:

 enh سبرعت وزارة التعليم العالي والبحث العلمي منذ سنة 2003 في تجهيز كل المؤسسات بتجهيزات للتعليم عن بعد متخصصة، بكلفة إجمالية تقدر بـ 16152000 دج. وما يميز العملية خاصة هو الاختيار الاستراتيجي فيما يتعلق باستعمال هذه التجهيزات، التي تأخذ في الحسبان تواقيها مع الحاجات الأكاديمية العالمية وفي نفس الوقت التماثلي مع خصوصياتنا الوطنية. وهذا التفكير هو الذي حدد اختيار استراتيجيتنا للتعليم عن بعد.

بعد التعليم عن بعد في الجزائر سندل للتعليم الحضوري، حيث يدعم ويقوي. بينما في دول أخرى متقدمة كانت أو سائرة نحو التقدم فهو يعد خيارا من الخيارات الممكنة بشكل متميز للمتعلم. إن هذه المقاربة تسمح للجزائر برفع تحديث كبير يتمثل في تحقيق الأهداف التالية:

1. امتصاص الأعداد المتزايدة باستمرار للطلبة، وفي نفس الوقت الوصول إلى تجاوز تدريجيا آثار الهرم المقلوب الذي يميز حاليا الطلبة (المعيار الكمي).

2. تحسين نوعية التكوين والاقتراب بسرعة نحو المعايير الدولية فيما يخص ضمن النوعية (المعيار النوعي).

والوصول إلى هذا المبتعدي تم ضبط أجندة على المدى القصير، المتوسط والبعيد تعكس الاهتمامات الأثرية والمتوسطة والبعيدة نوعا ما، وذلك على النحو التالي:
1. شبكة المحاضرات المرئية و نظام التعليم الإلكتروني لوزارة التعليم العالي والبحث العلمي:

يتعلق الأمر على المدى القصير أولا بعقلنة استعمال الموارد البشرية والمادية، وهذا من خلال: قاعدة شبكة المحاضرات المرئية، تدمج كل المؤسسات الجامعية، منها 13 موقعا مرسل و 46 موقعا مستقبلا، ورغم أن هذه الشبكة تسمح بتسجيل وبث غير مباشر للدروس، فإنها مستعملة أساسا في شكل متزامي، يستلزم الحضور المصاحب للاستاذ، المرافق والطالب، ويمكن أن يتم استغلال الشبكة حاليا في شكل "نقطة نقطين". بمجرد الانتهاء من وضع التجهيزات وتكوين الكفاءات (العمليات الجارية)، يمكن للنظام جمع 18 محاضرة مرفقة في آن واحد، بفضل عقدة مركزية وستة وحدات متعددة المواقع، موضوعة في مركز البحث في الإعلام العلمي والتقني.

وقد تم توسيع الشبكة بداية من الدخول الجامعي 2009 – 2009، نحو المدارس التحضيرية التي تم تزويدها كذلك بمخابر افتراضية وقاعات تدريس متعددة الوظائف موصولة بشبكة خاصة للمحاضرات المرئية، وهناك مرحلة موازية، أو على الأقل متأخرة قليلا، تتمثل في وضع نظام للتعليم الإلكتروني.

نظام تعليم الإلكتروني يركز على قاعدة للتعليم من بعد في صيغة (زبون - موزع - client/serveur) يسمح بإعداد الوصول إلى موارد عبر الخط في شكل غير متزامن، وبإمكان المنظمة الوصول إلى هذا النظام في أي وقت وأي مكان، بوجود أو عدم وجود مرافق. ومن القاعدة للمستخدمون استعمال مختلف الطرق عبر الخط (دروس، تمارين، دروس تطبيقية، نشاطات، تدريب، وغيرها)، ومن القاعدة للمستخدمون واسطة بيداًدوجية ثرية، متنوعة ودائمية، ومن القاعدة أيضا أدوات تسهيل التعاون والتواصل بين الأساتذة / المربّين و المتعلمين / أو بين المتعلمين (البريد، المنتديات، دردشة، فضاءات الإبداع والتحميل).

ويتمثل الهدف النهائي في وضع مسارات دراسية حقيقية عبر الخط، وهي مسارات مبنية على أساس الأخذ بعين الاعتبار حاجات المتعلمين، وترتكز على بيداًدوجية مركزة عليها، يتم بلوغها بوضع تقنيات بيداًدوجية محدثة طبقا للعديد من التكنولوجيات (التكنولوجيات الإعلامية، SCORM، IMS، LOM، IMS، SCORM، IMS، LOM، IMS).
ولبلوغ هذا الهدف تم تطوير برنامج عمل منذ منتصف نوفمبر 2006، يحدد بوضوح مسؤوليات كل الأطراف المعنية (اللجنة الوطنية لتعليم الإفتراضي، اللجان الجهوية للتعليم، مديرية التكوين العالي للدرج، مؤسسات، مركز البحث في الإعلام العلمي والتقني، جامعة التكوين المتواصل وممثليات بجهيتوات العمل)، وفي الوقت الراهن في المؤسسات الجامعية خاصة للتعليم عن بعد تضم خبراء بيداغوجيين، مهندسين وتقنيين استفادوا من تكوين متخصص ومتنوع، في إطار مختلف مشاريع التعاون، خاصة في إطار مشروع ابن سينا (اليونسكو واللجنة الأوروبية)، وبرنامج التعاون مع سويسرا كوزيلبرن(CoseLearn)، والجامعة الرقمية التي مقرها بجامعة العلوم والتكنولوجيا هواري بومدين بباب الزوار.

وسوف يتم تدبيع نظام التعليم الإلكتروني عن طريق الشبكة الوطنية مابين المكتبات التي هي حيز التوسيع لتشمل كل مؤسسات الوطن.

نظام تعليم عن بعد:

على المدى المتوسط سيتم ضبط نظام تعليم عن بعد، يسمح بإدراج خصوصيات التعليم الإلكتروني وتسهيلات التلفزيون، ضمن تصور يعده حتى حدود الجامعة الذي هو موضوع أصلا في صالحكا، وسوف يبقى إذن موجه أوليا للأسرة الجامعية، ولكن بمقدور أن يكون مفيدا لجمهور واسع أكثر من المتعلمين الساعين للترقية الاجتماعية ورفع من مداركهم، أو ببساطة متعطشين لمزيد من المعرفة في المؤسسات ضمن التكوين المتواصل أو في سلكة، مرضى مقيمين بالمستشفيات، أشخاص داخل مراكز إعادة التأهيل، أشخاص في العقد الثالث... الخ.

الشبكة الجزائرية للبحث (ARN): الوضعية الحالية.

تجر الإشارة إلى ما يلي:

- الشبكة الجزائرية للبحث (Network Research Algerian) التي تدعم على الخصوص نظام التعليم عن بعد من خلال توظيف جد، شهدت تطورا متذبذبا ومشتترا، لتبني الحاجيات الدقيقة والتي هي في الغالب مستعجلة، خاصة ما يتعلق بالدخول إلى الإنترنت.

- إن البباكون التابع لشبكة "أرن" الذي تم تصميمه وإنشاؤه على دعومن وخطوات تابعة لمواصلات الجزائر، Enterprise Resource Planning (ERP) يبدو غير قادر على تحمل المستقبلي، نظرا
لقدراته غير الكافية، وتعني بذلك نظام الإعلام المدمج التابع للقطاع بمفهومه الواسع، والذي يتضمن نظام التعليم عن بعد ومجمل تطبيقات التسيري (خاصة تسيري التدريس والمسارات البيداغوجية إن صح القول، تسيري الخدمات الجامعية، تسيري التراث الخ.) نظام اتخاذ القرار والإحصائيات وغيرهم.

- المبالغ المسددة للجزائرية للاتصالات من أجل استئجار الدفعات والخطوط (حوالي 2 مليار دينار جزائري في السنة) تحت التفكير في حلول أخرى تحسبا لإقامة شبكة مدمجة إن صح القول على نطاق واسع، والتي تتضمن نظائر التعليم عن بعد وجميع تطبيقات التسيري (خاصة تسيري التدريس والمسارات البيداغوجية إن صح القول، تسيري الخدمات الجامعية، تسيري التراث الخ.) نظام اتخاذ القرار والإحصائيات وغيرهم.

الشبكة الوطنية للتعليم والبحث المقبلة:

من المقرر على المدى البعيد إنجاز شبكة قطاعية يجب على غرار شبكات التعليم والبحث الأخرى أن تكون لها هيكلة خاصة مستقلة عن تلك التابعة للمتعاملين التجاريين ويجب:

- منح القطاع وعاء لبنية تحتية يلائمها، يكون من باكيون، روابط توصل بين المؤسسات، مركز وطني للبيانات وثلاثة مراكز جهوية. يسمح بالرفع من سعة الباكيون الحالية من 155 ميجابايت في الثانية إلى 2.5 جيجابايت في الثانية وحتى 10 جيجابايت في الثانية، وسعة الربط لدى المؤسسات التي لا تتعدى حاليا 100 ميجابايت في الثانية إلى 1 جيجابايت في الثانية.

- السماح بوضع نظام الإعلام والتعليم العالي والبحث العلمي، من خلال إقامة مجموعة من الخدمات الجديدة المتكاملة (G2G et G2C) في خدمة الطلبة، الأساتذة، الباحثين، الموظفين، والمواطنين. وتتأتي هذه الخدمات لتخدم الخدمات المتوفرة حاليا عن طريق البرامج التالية:

خدمات عبر الخط موجهة للمواطن G2C:

* التسجيل عبر الخط للحائزين على الباكالوريا. * الاطلاع عبر الخط على التقييم البيداغوجي.

* طلب المعادلات عبر الخط للمستندات والشهادات .

خدمات عبر الخط موجهة للإدارة G2G:

* نذير الطلبة الناجحين في الباكالوريا. * تسيير ل.م.د.

* تسيير مشاريع البحث - التكوين (CNEPRU).

* متابعة التكوين في الخارج.
وضع على الخط الخدمات في منصة حول التعاون والتبادل مع المؤسسات: دليل التعليم العالي، تحقيق*

حتى مؤشرات التنمية البشرية، تحقيق إحصائي يتضمن الحصيلة النهائية للدخول الجامعي، تحقيق حول حاجيات المؤسسات فيما يخص تجهيزات الإعلام الألي، إعداد ملفات البحث المختلفة.

* تسهيل مشاريع البحث ومتابعة صرف الاعتمادات

إن تطوير تطبيقات حرفية أخرى يسمح بتعزيز تلك الموجودة أو في طريق التطور، مثل تطبيقات: تسهيل

الموارد البشرية، المناظرة المالية لعمليات الاستثمار، التسهيل الإلكتروني للوثائق، وتسهيل الخدمات الجامعية،

ومن خلال إقامة شبكة التعليم والبحث المвиصلة، فإن التعليم عن بعد سيساهم أكثر في تحديث أدوات وطرق

التعليم، لاسيما من خلال بناء فضاء رقمي - مفتوح للمواطن - يدمج الاتصال الموحد، تبادل المعلومة

والعمل التشاركي بين كل الفاعلين، وقد تم تسجيل المشروع للدراسة والذي تقدير مدته بحوالى أربع سنوات

خلال السداسي الأول لسنة 2010.

خصائصات نظام التعليم الإلكتروني:

- منصة إ – شارلمان (المالك).

- تكنولوجيا:

- شبكة مكروسوفت: إعداد الدروس في شكل XML قابلة للنشر على الإنترنت أو بواسطة أقراص مضغوطة

- خدمات الويب SOAP

- المعايير والقياسات:

✔ EDUEURO 3.0 ✔ IMS 1.3 ✔ SORM 1.2 ✔ AICC 2.1

تدمج المنصة بين عدة مقاييس تشكل مسارا ينطلق من إعداد إلى نشر و ثم تعميم الموارد.

خصائصات نظام المحاضرات المرئية:

- يسمح النظام ببث المحاضرات المرئية التفاعلية متعددة النقطة (مواقع مرسلة نحو مواقع مستقبلية).

- للنقطة المركزية ست وحدات (6) متعددة المواقع: كل وحدة يمكن أن توزع 17 مشاركا على 3

محاضرات، في الإجمال 18 محاضرة يمكن أن تتم في أحسن واحد، مع إمكانية تسجيل 10 منها.
في كل وحدة من الوحدات السبع المتعددة المواقع، يمكن إما ربط 17 مشاركاً في نفس المحاضرة، وإما توزيعهم اختيارياً محاضرة لـ 10 مشاركيًّاء أو محاضرة لـ 4 مشاركين أو محاضرة لـ 3 مشاركين.

خلال محاضرة مرنة، يمكن للأستاذ تبديل مضمون العرض على مستوى المواقع المستقبلة من أجل:

- إظهار مضمون الصفحة الأولى لحاسبه الخاص، أو إرسال الصورة الآتية من جهاز التسجيل.
- يمكن إبراز (16) موقعًا على نفس الشاشة.

بعد استعراضنا لتجارب جامعات عربية وغربيّة في التعليم الإلكتروني نقوم بالمقارنة بين التجربتين وذلك على النحو التالي:

أولاً: من حيث التأسيس والاعتماد.

- بعض الجامعات والتي كانت محل دراستنا هي جامعات معتمدة على غرار كل من جامعة جونز، بونيتار، حكام الولايات الغربيّة، وهناك تاريخ ونص صريح يؤكد على اعتمادها.
- أن بعض الجامعات تم تأسيسها بمبادرة من الحكومة وتم إخضاعها لوزارة التعليم العالي على غرار جامعة الكاتالونيا، والسورية والتونسية.
- أن بعض الجامعات تكتسب شرعيتها من الجامعة الأم أو الأصل التي تتبعها على غرار جامعة فونيكس، كولمز، وجنوب كينزلاندا.
- أن بعض الجامعات شكلت ائتلافًا لتقديم التعليم الإلكتروني على غرار الجامعة الكندية.

ثانياً: المستهدفون.

الجمهور المستهدف في التعليم الإلكتروني في الجامعات محل الدراسة كان مختلفًا وذلك كما يأتي:

- التركيز على المتعلم من الكبار والموظفين في كل من جامعة فونيكس، كولمز، كاتالونيا.
- التركيز على شريحة متنوعة من المتعلمين في كل من جامعة حكام الولايات الغربيّة، بونيتار، الجامعة السوريا، التونسية وكذلك الكندية.

ثالثاً: التنظيم القانوني.

استُخلِفت التنظيم القانوني للجامعات محل الدراسة في كل مرة فأخذ صورة عدة:

- نموذج الائتلاف المحلي أو القومي على غرار الجامعة الكندية.
نموذج الابتلاإلي الإقليمي على غرار جامعة حكام الولايات الغربية.
- كما اختلفت الجامعات في الأعضاء التي يكونونها بين شاملة لجامعات حكومية على غرار جامعة حكام الولايات الغربية.
- كما أن الجامعات أخذت أشكالا متعددة: حكومية أو خاصة، تقليدية، افتراضية.. الخ.

- كما أن بعض الجامعات يعمل كوساط بين الطالب وإحدى الجامعات بناء على شراكة قد تكون محلية أو ذات طابع دولي على غرار الجامعة السعودية.

- كما أن هناك جامعات مستقلة حكومية غير ربحية على غرار جامعة يونيتار، الجامعة التونسية، وجامعة كالاتونيا، وهناك جامعات مستقلة خاصة وربحية على غرار جامعة جونز الدولية، وجامعة فونيس.

- كما أن هناك جامعات تقوم بتقديم تعليم تقليدي والكرونيت مع بعض، وهناك جامعات تقوم بتقديم التعليم الإلكتروني فقط، وهناك من الجامعات من أقامت نظام للتعليم عن بعد كدعاية للتكوين الحضوري.

رابعا: النظام المتبقي في التعليم.

من خلال دراستنا للنظام المتبقي في التعليم في الجامعات التي كانت محل دراستنا يمكننا تقسيم هذا الأخير إلى قسمين:

- اتصالات وتفاعلات غير تزامنية على شبكة الإنترنت.
- نظام تدريس يستخدم التفاعلات غير التزامنية كنظام رئيس لتقل التعلم مدعا بتفاعلات تزامنية والتعليم وجها ووجه في مراكز دراسة محلية أو إقليمية أو دولية.

خامسا: تطوير المقررات.

هناك اختلاف بين الجامعات محل الدراسة في إنتاج المقررات وتطويرها وذلك على النحو التالي:

- جامعات تعمل من خلال أعضاء هيئة التدريس على تطوير مقرراتها بداخلها سواء كانت هذه الأخيرة مستقلة على غرار: جامعة يونيتار وجنوب كويز لاندا وكولومز والجامعة التونسية وكاتالونيا، كانت هذه الأخيرة عضوا في اتفاق على غرار الجامعة الكندية وجامعة حكام الولايات الغربية.
- جامعات تم تطوير مقرراتها خارجيا من خلال مشاركة وهئيات تدريس على النطاق الدولي على غرار جامعتي جونز والجامعة السورية.
جامعات تجمع بين الطريقتين السابقتين على غرار جامعة فونيسك والتي يتم تطوير بعض مقرراتها

dاخليا، والبعض الآخر خارجيا من قبل مكاتب استشارية متخصصة.

سادسا: البرامج الأكاديمية.

من الملاحظ أن البرامج الأكاديمية والمقررات الأكاديمية تتميز بالتنوع، غير أن الملاحظ أن هناك اختصاصات موجودة وبشكل كبير في كل الجامعات تقريبا على غرار إدارة الأعمال، الإعلام الألي، التربية...الخ.

الفرع الخامس: تجربة جامعة حمدان بن محمد الإلكترونية.

التأسيس والاعتماد: انطلقت جامعة حمدان بن محمد الإلكترونية في أول فبراير 2009 من قبل صاحب
الشيخ محمد بن حمدان ولي عهد دبي، وقد أصدر الشيخ نهيان بن مبارك آل نهيان وزير التعليم العالي
والبحث العلمي قرارا بشأن الترخيص لجامعة حمدان بن محمد الإلكترونية للعمل في مجال التعليم العالي.
ويعتبر القرار أن يرخص لجامعة حمدان بن محمد الإلكترونية، ومقرها إمارة دبي، للعمل في مجال التعليم
العالمي وفقا لأحكام القانون الاتحادي رقم 4 لسنة 1992 اعتبارا من الأول من يناير/كانون الثاني 2009
وحتى 31 ديسمبر/كانون الأول 2013. يعود النظر في هذا الترخيص بصفة دورية وفي إطار التقييم
الشامل الذي تقوم به الوزارة.

وتعد هذه الأخيرة المنصة الوحيدة للتعليم الإلكتروني في دولة الإمارات العربية المتحدة تركز فلسفة
الجامعة على أسس هامة تتمثل في تدريس أحدث المناهج عالميا وتحداث فكرة التعليم مدى الحياة وحرية
الاطلاع على هذا المناهج، إضافة إلى التأكيد على أن التعليم للجميع، وكفاءة الفرص في التعليم وتحقيق
مرونة وسلامة هذه البرامج التعليمية، وتعميد الجامعة الشكل الأكاديمية الاستراتيجية الأساسية التي تركز
على الدارسين وتمثيل في الجودة والتميز والاعتماد والاعتراف الدولي والتعلم مدى الحياة وتلبية حاجات
السوق وتفعيل البحث العلمي والإبداع والابتكار، حيث تتبع هذه الرؤية النموذج الرباعي المتمثل في تعزيز
المكانة وتأكيد الريادة وترسيخ الشراكة وتطوير الآداء.

فما يتعلق بالسمات الرئيسية للرؤية الأكاديمية الاستراتيجية: فيمكننا إجمالها فيما يلي: الابتكار و التميز
والالتزام، وتجلي كل سمة من هذه السمات الرئيسية في أربعة محور هي على الترتيب: الأبحاث والتطوير،
والتعليم والتعلم، والمكانة الاستراتيجية، وتطوير وتوزيع المعرفة، وتهدف الرؤية الأكاديمية إلى تعزيز

(563)
مكانة وصورة التعليم الإلكتروني في المجتمع، وتوفير تجربة أكاديمية ثرية، وتمكّن تطوير ونشر المعرفة، وتكييف نظام الحوكمة الأكاديمية.

المستهدفون:

- حملة شهادة الثانوية العامة أو ما يعادلها: يحق التقدم للقبول في برامج الدراسات الجامعية لحملة شهادة الدراسة الثانوية أو ما يعادلها حسب اعتماد وزارة التعليم العالي والبحث العلمي بحد أدنى للملحق الكلي 70% من الفرعين العلمي والأدبي.

- حملة شهادات الثانوية الفنية أو ما يعادلها: يحق لحملة شهادات الثانوية الفنية التقدم للقبول في الجامعة في حال استيفاء الشروط التالية: الحصول على شهادة ثانوية فنية أو صناعية بمعدل أدنيًا للدرجات 75%، الحصول على شهادة ثانوية تجارية بمعدل أدنيًا للدرجات 75%.

- خريجو الدبلوم أو الدبلوم العالي: يمكن إعفاء حملة شهادة الدبلوم أو الدبلوم العالي الصادرة عن أي مؤسسة تعليمية معتمدة من معدل درجات الثانوية العامة ويمكنهم التقدم بشكل نظامي لبرامج الدراسات الجامعية. في حال كان لدى هؤلاء المتقدمين شهادة دراسة ثانوية إلى جانب شهادة الدبلوم أو الدبلوم العالي، فإن لهم الحق في التقدم لنقل الساعات المعتمدة للمقررات التي تم إنجازها بنجاح حسب سياسات الجامعة المتعلقة بنقل الساعات المعتمدة.

- حملة شهادات دبلوم كليات التقنية العليا: يمكن إعفاء حملة شهادة دبلوم كليات التقنية العليا أو ما يعادلها من معدل درجات الدراسة الثانوية (في حال كان أقل من 60% أو شهادة تجارية في حال كان أقل من 70%)، ويحق لهم التقدم للقبول بشكل نظامي إلى برامج الدراسات الجامعية. وتتطلب شهادة الدبلوم معادلة لشهادة الثانوية ولن يتم نقل أي ساعات معتمدة للمقرارات التي تعطى على مستوى هذا الدبلوم في هذه الحالة.

- المتقدمين بشهادات الدراسة الثانوية من الولايات المتحدة وبريطانيا العظمى ودول أخرى: ينبغي على المتقدمين بشهادات الدراسة الثانوية الصادرة من بريطانيا العظمى مثل IGCSE, GCSE, GCE، وأي شهادة من الشهادات الصادرة من الولايات المتحدة، ومن مدارس ثانوية أخرى خارج الإمارات العربية المتحدة، وسواءاً من الشهادات.)

(564)
التقدم إلى وزارة التربية والتعليم للحصول على قرار بمعادلة شهادة الدراسة الثانوية من لجنة معادلة الشهادات.

- إجادة اللغة الإنجليزية: يجب على المتقدمين أن يكونوا قد حصلوا على درجة "توفل" دولي بحد أدنى 500 للاختبار الورقي، 173 لاختبار الكمبيوتر أو 62 لاختبار الإنترنت. وتقبل درجة "إلتس" 5.0 أو أكثر كبديل لدرجة "توفل".

- الدارسون المنتقلون من مؤسسات أخرى: ينبغي على الدارس تعبئة نموذج نقل ساعات معتمدة قبل ما لا يقل عن 10 أيام من بدء الصف الدراسي وتقدمه إلى مكتب القبول والتسجيل بالإضافة إلى نسخ من كشف الدراجات، وصف المقررات ومنهاج المقررات الدراسية.

التقني في التعليم: تتبني الجامعة في تقديم برامجها الأكاديمية ما يسمى بالتعليم المدمج ولا تعتمد فقط على التعليم الشبكي، ويجمع التعليم المدمج بين عدة طرق في تنفيذ برنامج أو دورة دراسية، بما في ذلك قاعات الدرس وجهاً لوجه، القاعات الدراسية الإلكترونية أو الشبكية والتعليم الذاتي.

- البرامج الأكاديمية: تقدم الكلية برامج أكاديمية للدراسات الجامعية والدراسات العليا ذات طبيعة عامة وخاصة في إدارة الأعمال والجودة وإدارة الموارد البشرية والتميز المؤسسي وإدارة الإبداع والتغيير.

- إدارة المشروعات والقيادة التنظيمية والمصرفيّة الإسلامية والتنسيق.

كما تقدم الكلية برامج أكاديمية وبرامج شهادات للدراسات العليا للدارسين والمهنيين في مجال الرعاية الصحية من أجل تعزيز معارفهم ومهاراتهم في مواجهة التحديات الصحية والبيئية، وسط بيئة مبتكرة لتعليم الإلكتروني تطبق نموذج التعليم المدمج وتعزز التميز الأكاديمي.

كما تقدم الكلية برامج أكاديمية متخصصة في الدارات العليا للدارسين بما يمنحهم القدرة على أداء دور هام ومثير في مجال التعليم الإلكتروني والتعليم عن بعد، والإعلام بكافة أبعاد التعليم المعزز بالتكنولوجيا بما في ذلك إدارة هذا التعليم وشؤونه.
خاتمة:

في ختام دراستنا لموضوع التعليم الجامعي الإلكتروني في عدد من الجامعات العربية والغربية على السواء، نجد بأن التوجه لهذا النوع من التعليم والذي كان نتاجاً لما شهدته تقنيات الاتصال من تطور سريع إلى جانب الانتشار السريع لتطبيقات شبكات المعلومات والشبكات الافتراضية، فقد أبرزها على وجه الإطلاق التعليم الإلكتروني وهو ما أدى لظهور الجامعات الافتراضية في العديد من الدول مسبأة منها لما هو حاصل من تطورات ومstacles.

كما أن عدد من الجامعات التقليدية وبالنظر للمستجدات السالفة الذكر تحولت العديد منها إلى جامعات افتراضية ذات صيت عالمي، تعمل على تقديم العديد من البرامج الافتراضية يتم تقديمها بواسطة الشبكة الالكترونية، وهو ما سيؤثر بشكل أو بآخر في باقي الدول الأخرى التي تطبق بعد التعليم الإلكتروني في جامعتها بعد حيث سيصبح هذا الأخير خياراً مفروضاً عليها التعامل معه لأنه سيكون أسلوباً شائعاً وكذا موازياً للتعليم التقليدي الذي تقدمه جامعتها، وفي هذا الصدد نصل لجملة من التوصيات التي من خلالها يمكن للدول العربية بصفة خاصة استغلال تقنيات المعلومات لمواجهة العديد من المشاكل الهامة، وخدم قدرة المؤسسات على بالاحتياجات التنموية...الخ نوجزها في النقاط التالية:

1. على الدول التي تريد أن تعمل على تطبيق التعليم الإلكتروني في جامعتها العمل أولاً على تطوير مناهج التعليم قبل الجامعي بما يسمح بإعداد الطالب عقلياً وتكنياً للتعامل مع التقنية الجديدة مع هذا النوع الجديد من التعليم.

2. على الدول العربية التي تريد أن تعمل على تطبيق التعليم الإلكتروني في نظامها التربوي العمل أولاً العمل على توفير جاهزية كبرى في كل من الجامعة وهيئة التدريس معاً، إلى جانب البيئة الإدارية.

3. لا بد من توفر هذه الأخيرة على ثقافة منظماتية مختلفة تماماً عن بنية التعليم التقليدي، إلى جانب تغير جوهري في طرق التدريس، إلى جانب ضرورة أن يكون عضو هيئة التدريس مواكب لكل التطورات الحاصلة، وعمله على تطوير المقررات التي يدرسها بشكل مستمر بما يتوقف مع ما يحصل في العالم من تطورات لاسيما إذا كانت عملية التطور في المقررات تتم بشكل داخلي ومن قبل هيئة التدريس.
شرح وتوضيح المسائل التنظيمية لتكنولوجيا المعلومات والتعليم الإلكتروني في التعليم العالي، مثل إدارة الابتكار ومدى مواعيد الحلول البديلة وكيفية زيادة قبول الهيكل الإداري بالجامعة للحركة نحو الابتكار في التعليم.

إنشاء قاعدة بيانات في التعليم الإلكتروني تحدد كيف ومتى أي أن يكون التعليم الإلكتروني هو الحل الأمثل، ومتى يكون إضافة ومتى يكون بديلاً.

دعم إنشاء مراكز تعلم على المستويات المحلية والإقليمية تقدم خدمة التعليم الإلكتروني وربطها بشبكة قومية تتعلق مباشرة بالجامعات التي تتبعها.

يعتمد العمل على إنشاء مؤسسات وطنية متخصصة في تكنولوجيا المعلومات.

باعتبار أن التعليم الإلكتروني الذي تقدمه الجامعات ليس مجرد نقل المعلومات أو سردها بواسطة الشبكات والتقنية الحديثة، فإن جاهزية توفر التكنولوجيا التي تشكل عملاً عملية التعليم الإلكتروني لإدمن أن توفر الجامعة على الموارد البشرية المؤهلة في كل ما يطلب تطبيقة التعليم الإلكتروني لعل أهمها على وجه الإطلاق توفر الأطرات المؤهلة في التصميم التعليمي لليان التعلم الإلكتروني لما لهذه الأخيرة من أهمية في مثل هذا النوع من التعليم، وكذا توفر إطارات مؤهلة في إدارة نظام التعليم الإلكتروني.

لكي نحصل على تعليم كهربائي ذو جودة عالية يعتين تحولاً جذرياً في أربعة مجالات رئيسية وهي: الفلسفة التربوية والنموذج التربوي، ثانياً في دور التكنولوجيا، ثالثاً في دور عضو هيئة التدريس، وأخيراً في دور الطالب، ومتى توفر التغير في كل ما سابق فإن التعليم الإلكتروني سيحقق الهدف المنشود منه وكذلك جودة عالية.

يعتمد مراعاة المعايير الأكاديمية ومعايير الجودة في مراحل تصميم البرامج واعتمادها ومراجعتها.

يعتمد على الهدف المؤسسة عن وضع الخطط الاستراتيجية لتطبيق التعليم الإلكتروني في الجامعات مراعاة بعض الاستثناءات المتعلقة بعض التخصصات التي يمكن فيها التعلم بالطريقة الإلكترونية، بالنظر لطبيعتها أو بالنظر لطبيعة المتعلم.

عند تطبيق الدولة للتعليم الإلكتروني في جامعاتها يتبعن عليها أن توجه كله اهتماماً للجوانب التربوية والتقنية.

حتى يكون التعليم الإلكتروني ناجحاً ومحقاً للأهداف المرجوة منه يتبعن أن يتوافر على إدارة فعالة للتطوير وضبط الجودة.

تطوير معايير الجودة في التعليم بما يتماشى مع هذا القالب التعليمي الجديد، كما يتبعن العمل على تطوير المناهج الجامعية بما يتماشى مع المعايير الجديدة للجودة.
The Deanship of Scientific Research wishes to acknowledge and thank Professor Alain Sentini, Dean of School of e-Education and Conference Chair as well as members of the Technical Committee listed below who have contributed their time to review submissions for this conference.

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