

Arab Nations Adopt eLearning to Improve Instruction

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1

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Abstract

Arab countries have adopted [virtual] e learning to provide interactive education, which characterizes a departure from the traditional classroom setting. Partnerships with Apple, Android, Blackberry, and Windows have resulted in mobile software applications. Researchers indicate that mobile devices inject fun into learning and increase students' motivation. Furthermore, e-learning improves teacher-learner relationship by shelving face-to-face communication, and is most constructive in regions with fewer or less qualified teachers. While surveys show e-learning is effective, students' evaluations are mixed. For instance, students are displeased about untimely posting of grades. Notwithstanding, e-learning initiatives, such as Arabic Mathletics and Arab/English, provide unprecedented learning opportunities for the region.

Index terms— education, e-learning, teacher, students, mobile, phone.

1 I. Introduction

Middle East environments are suitable for mobile education. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has put together working papers on mobile learning during the past two decades, which explore the potential of mobile technology in education. Accordingly, Arab countries have invested generously in education.

For example, Tunisia (before civil war) set aside seven percent of gross domestic product (GDP) in elearning initiatives, placing it at the top of the global list in this endeavor. Cherrayil (2010) projects mobile penetration in the Middle East to be 93.9 percent in 2011, to reach 125.5 percent by 2015. Muttoo (2011) remarks that even poorer countries, such as Yemen and Palestine, have witnessed a surge in mobile penetration due to a burgeoning youth market and emergence of new telecommunications operators. In the Gulf, 87 percent of young Arabs aged 15 to 29 had access to mobile phones in 2010, up from 79 percent in 1979. In Qatar and United Arab Emirates (UAE), the mobile penetration rate exceeds 100 percent.

These developments have sparked attempts at using mobile phones in both formal and informal learning in open and distance learning (ODL) in the Middle East. Mishra (2011) says, "The ubiquity of mobile phones brings opportunities for extending the scope, scale, and quality of education." Saxler (2009) says mobile learning in education forms a phenomenon in which mobile devices are increasing access to information and knowledge, anywhere and anytime, and in new forms of learning.

Mobile learning has become a "u-learning" paradigm in certain Arab countries. Hence, Waseda University developed the Japanese Language Learning program. Capitalizing on acquired experience with mobile learning paradigms, the university uses web 2.0 capabilities that include visual and acoustical support for learning. The learner is able to test learned abilities and listen to real life dialogues in either Japanese or Arabic. Meanwhile, Romanization of characters enables learners to master reading.

In the Arab countries of the Gulf Region, Siveco Romania is taking the lead. The company took part in the 2012 Kuwait EduTech Conference under the theme, "Vision eLearning within the Gulf Cooperation Council (GCC) Area." Siveco presented newest technologies addressing e-learning solutions in Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE.

The company's e-learning products are comprised of 39,000 Reusable Learning Objects that served tens of subjects. Between 2008 and 2011, Siveco delivered 7,000 translated, interactive learning programs to improve instruction in UAE. "We're proud to see that our eLearning solutions bring real benefits to the entire pre-university education system of the United Arab Emirates," declared Alexadru Cobuc, Sivecon vice president for international projects. Cobuc notes that "attractive" and modern digital e-learning materials save time and effort so teachers can concentrate on lesson plans.

Actions by Arab countries to incorporate elearning into education have not gone unnoticed by the telecommunications industry. In a piece entitled, "Middle East is making the grade in e-learning," and published in The National, Glover (2010) reports that Microsoft Corporation has held talks with regional governments and educational institutions to consider high-tech digital systems.

Ascribing quote to Microsoft Corporation, The National, writes, "With e-learning, students can learn at their own pace, get immediate feedback and repeat tasks they don't understand." UAE's Advanced Network for Research and Education is developing e-learning proposals consistent with the Middle East E -Learning Association (MEEA) launched in February 2010. MEEA members include Bahrain, Kuwait, UAE, Jordan, and Palestine.

UAE students are able to register for classes online. Furthermore, they will be able to check their grades, take quizzes, and complete assignments online. Conroy (2011) states that Abu Dhabi University has launched the Blackboard Mobile application. The purpose is to take advantage of mobile phones as a way to improve student involvement in their education and quick notification of grades.

Meanwhile, Abu Dhabi University uses Blackboard online services for online discussion forums, view campus maps, and read announcements. Basically, a teacher can also link media or related class materials to "comment threads," or send an announcement before class, even if it is just to say, "I'm stuck in traffic." Teachers are excited about e-learning. Yara Azouqa, an English instructor, explains that elearning opens up the classroom experience to more students.

The paper sought to address seven topics. Topic one set out to establish the rationale for e-learning in the Middle East. Topic two examined to what extent elearning has been accepted and practiced in the Middle East. Topic three looked at the use and development of mobile e-learning applications for education. Topic four assessed e-learning and students' analytical and mathematical capabilities. Topic five considered how elearning has contributed to the teaching profession. Topic six addressed quality e-learning assurance issues in the Middle East. And topic seven concentrated on future e-learning initiatives in the region.

In addressing topic one, the paper sought to lay the rationale for adopting e-learning in the region and to draw examples from other parts of the world that may be replicated. Topic two assessed the gains made in incorporating e-learning into education. In topic three, it was desirable to discuss available mobile e-learning applications without which e-learning would be impaired. Topic four set out to identify e-learning initiatives that benefit students, including examples from other countries. Topic five chronicled ways by which elearning has transformed teaching. Topic six looked at initiatives to ensure that the quality of education is neither compromised nor undermined. And topic seven addressed future of e-learning in Middle East and beyond.

2 III. Literature Review

a) The Case for eLearning in the Middle East From a literal perspective, Trinity College (Cambridge, Britain) refers to e-learning as electronic learning that incorporates learning contexts using new information technologies. The college considers elearning in higher education as a vehicle to enable students to access, investigate, analyze, and evaluate concepts and ideas in their courses.

In the meantime, the Australian National Training Authority (ANTA) defines e-learning as a broader concept that encapsulates electronic devices. Segement and Holt (2003) state that, e-learning "enhances the educational experience of students in higher education . . . which requires strategically acquired digital technologies."

eLearning gives universities a giant step forward in reaching a broader spectrum of clientele. ??rown and Duguid (2000) say teaching, research, and service to the larger academy and greater society are the major functions of most universities. The authors stress that, in an era of knowledge-based societies, there remains an urgent need to go beyond traditional methods of delivering education. the 21 st Century, calls on universities to move past traditional roles. Duderstadt urges teachers to be engaged in producing, conserving, distributing, and

3 (G)

Azouqa styles "e-learning" as a new style of learning that allows them [students] to participate, regardless of other personalities, and eliminates the roles they take on in the classroom: the leader; the joker; the speaker; the cautious; and the "less skilled." Azouqa concludes that e-learning enables students to break out of the rigid classroom environment by allowing them to interact with the material in different ways and at their own pace.

Arab Nations Adopt eLearning to Improve Instruction Durham, North Carolina (United States), is home to Urban Planet Mobile. The telecommunications company is under contract to make available the Urban English Language Learning program to 13 million subscribers of Mobily (Saudi Arabia) and Umniah (Jordan).

The e-learning program allows each subscriber to receive detailed daily English lessons on their mobile phones via text messages (SMS) prefaced by an attached English-learning ring tone.

4 II. Methodology

The paper used secondary sources that included databases on e-learning, mobile phones, and mobile devices that support education. Furthermore, books were consulted, plus newspapers, magazines, and electronic sources via the Internet. Published works under the subject were reviewed as well. These sources were used for purposes of interpretation and analysis. "Uses and gratifications" was used as the theoretical framework for the paper.

The program has unearthed an insatiable quest among Arabs to learn English. Since 2012, Mobily and Umniah have seen subscription jump by more than 30,000. Urban Planet Mobile founder, Brian Oliver Smith, reflects on the partnership: between countries arise from a lack of cross-cultural awareness and understanding . . . We equip people with the tools to understand one's culture and avoid misunderstanding." "Tensions applying knowledge to different contexts; assume leadership roles in learning communities for teachers and learners; and to develop learning-centered systems where learners determine and control what, when, where, and with whom they learn. In this regard, writes Duderstadt, "innovative universities would introduce elearning as a critical component of teaching and learning."

A point raised often in colleges and universities is quality education. Another is how quality education can be delivered. Consequently, the consensus is that technological revolution is a viable vehicle in the modern world. Thoms (2008) says the use of technological revolution in higher education has given rise to elearning. "The growth of e-learning is explosive, it's unexpected, it's exciting," adds Thoms. "We must understand the complexities of learning . . . in order to identify and address the many implications."

Thoms provides advantages for e-learning. Elearning employs state-of-the-art technology and instructional strategies. Moreover, e-learning makes it possible for participants to share cultures. Technology, too, accommodates disabilities (with or without knowledge of participants); gender ceases to be an issue because the global classroom is ubiquitous.

Referring to the Middle East, KleeBen (2004) declares that, money spent on education is considerably higher than the international average. This, KleeBen argues, is due to a strong interest in quality education motivated by changes in educational demands in a competitive global market. This interest has attracted telecommunications giants to conduct business in the Middle East.

Another key player is MTC Vodafone in Bahrain. The high-tech giant has spearheaded an e-learning center at the University of Bahrain -Sakhir Campus. In association with WebCT, the e-learning center has developed online services that include e-testing, student e-assessment, and performance e-evaluation. Today, WebCT offers e-learning programs to 45 clients in the Middles East.

5 b) eLearning Lessons Learned

In 2004, the Korean Ministry of Education announced an overhaul of that country's plan for elearning and the subsequent development of a "learning compared to traditional classes. It makes it possible to offer multiple learning opportunities based on selfregulated learning. eLearning is characterized by individualized interactive learning.

A school in New Mexico uses mobile devices to assess kindergarteners' reading progress. The school then uses the results and tailor instruction to help students develop oral literacy. Within the first three years, the number of students reading at benchmark levels rose from 29 percent to 93 percent.

In India, primary schools have used mobilephone games to enable students from rural, low-income households to learn English. Aided by teachers, researchers devised a simple game to develop listening comprehension, word recognition, sentence construction, and spelling. Test scores of students using mobile-phone games improved by 60 percent.

Just as there are advantages to e-learning so, too, are there disadvantages. For instance, students with disabilities may be functioning at a disadvantage for a number of reasons; participants who are technologically overwhelmed may be ill-prepared to enroll or do well. Online discussions may inhibit students from usual face-to-face expressions that have the benefit of body language. A major disadvantage concerns students for whom English is not their native language, or for those students who are not proficient in the language.

These students have difficulty communication and being understood, which may adversely affect their performance or assessment.

In Britain, Little (2009) makes known that attitudes toward e-learning are changing. The company, Towards Maturity, did a study that showed 64 percent of organizations are increasing their e-learning technologies budgets to strengthen on-boarding (orientation) training and to improve the quality of learning and to develop a more qualified workforce.

Still, the greatest barrier to successful implementation of e-learning technologies was cited as "people factors." More than 50 percent of respondents said reluctance to adopt e-learning technologies was the "people factor" problem. Following closely behind (47 percent) said the most significant barriers were cost restrictions and poor infrastructure.

Mobile networks cover nearly 90 percent of the population today. Simply put, the mobile networks are continually creating and updating technology and platform to increase availability for leaners worldwide. eLearning is already allowing thousands of people in China, Bangladesh, South Korea, and Indonesia to learn English through SMS and audio lessons to alleviate the shortage of trained teachers.

At the University of Waterloo (Canada), teachers deliver lessons through podcasts that students can

6 Global Journal of Human Social Science

7 (G)

Starting with the first office in 1991, Microsoft Corporation runs five subsidiaries in the region. Sana'a University (Yemen) is home to the Learning Gateway Solution, an advanced e-learning capability serving 70,000 students and technical staff. The resource provides course content services, online examinations, prompt online submission of course work, as well as communicating and collaboration tools.

an online company, Megastudy, offers distance-tutoring services, connecting one master teacher with thousands of students at a time.

Even the future of mobile apps is luminous. McKinsey (undated) takes note of the growing success of mobile apps in e-learning. McKinsey describes mobile apps as packaged pieces of software to run on devices, such as computer and smart phones. Apple, Android, Blackberry and Windows offer approximately 80,000 educational apps. This is in addition to 170,000 apps in the most popular categories that include games and entertainment. The popularity of mobile phones in education has picked up pace in various regions of the world. Harnell-Young and Heym (2009) comment on mobile phones and student learning in secondary schools. In Britain, the authors reflect, 91 percent of 12 year-olds have mobile phones. Thus, the authors, emphasize, the evolving technological capacities of mobile phones beckon on their use for educational purposes. The argument is that, smart phones come with voice and text, along with still and motion video, spreadsheets and Word-processed files.

The University of Nottingham conducted a study on the use of mobile phones in secondary education. The nine-month study (2007) (2008) involved ten secondary school teachers based in two separate schools, and one cluster of three schools in separate counties. The study involved 300 students selected by teachers.

Nottingham results showed that students' use of mobile phones concentrated on the production of images and video clips. 96 percent of the respondents used the still camera to capture evidence of activities in class; 22 percent used the video application for the same purpose; ten percent used mobile phones to transfer data between mobile phones and their own information communication and technology (ICT) resources; and seven percent transferred data to peers or to teachers. Students used certain mobile phone functions for specific subjects: the stopwatch was often used in science and mathematical calculations.

Older students adapted more easily to mobile phones in improving learning; younger students needed encouragement from teachers. In science subjects, students were able to capture an image on camera and to import it into a report.

The study revealed that some students preferred text messages to face-to-face interaction with teachers. In the schools where students used mobile phones 24/7 over a period of months, there was an atmosphere of trust; students' sense of autonomy was assured.

Khwaileh and Al-Jarrah (2010) are professors at the University of Jordan. They conducted a study on Graduate Students' Perceptions Toward Mobile-Learning at the University of Jordan. The authors confirmed that mobile phones have transformed education. Thus, learning is no longer based on theory alone. It is incorporating e-learning into education.

Harriman (2007) upholds the use of hand-held devices as tools of e-learning. Head (2005) observes Britain, Italy, and Sweden have embraced e-learning as a means to advance youth literacy and numeracy. These countries contend that mobile devices add fun to learning, increase students' motivation, and contribute to lifelong learning.

A 2007 survey by Jordan's Ministry of Information and Communications Technology found that, 86 percent of Jordanian families have mobile phones; 36 percent have computers. This suggests a majority of the younger generation have a mobile phone (at hand) most of the time. Amin et al. (2006) are confident that mobile phones are on the verge of transforming the traditional "lecture style" classroom thanks to technological interactive capability. Another reason, adds Whitsed (2004), is that mobile devices are walking companions that can be taken anywhere, and at anytime.

Jordan's government-sanctioned survey found that, 80.7 percent of the respondents are willing to use mobile phones for learning. The survey also showed that students are willing to use technology if they are familiar with it and if they have experience using it. Results also disclosed there is agreement among students on the advantages of mobile phones in learning.

8 IV. Findings a) Mobile eLearning Applications

Mobile phone applications (apps) can be referred to as "motivators" of interest. They can also be labeled "captivators" of interest. It is not surprising that, the 2013 Horizon Report of New Media Consortium predicted mobile applications in higher education have a one-year or less adoption period. That is to say, mobile applications are developed and marketed with such rapidity and frequency that users are tantalized to shift gears or risk succumbing to "apps saturation."

Chen and Denoyelles (2013) reiterate the importance of apps in e-learning. The authors believe the multiplicity of mobile devices is an impetus for the

9 (G)

A survey by Chen and Denoyelles at the University of Central Florida (US) revealed that, laptop use among students was rated at 85 percent; mobile device use was 45 percent; smart phone use was 37 percent; and e-books was 31 percent. Overall, 67 percent of students' smartphones and tablets are used for academic purposes.

More specifically, students reported using mobile apps most frequently: checking for social network sites, listening to music, and playing games. The academic apps students reported using the most were UCF Mobile, Tegrity, Mobile Learn Apps, Flash Cards, Khan Academy, and iTunes. Apps for books were CourseSmart and Inkling; reference apps were Dictionary, Wikipanion, WolframAlpha; and productivity apps used were Evernote, Dropbox, Pages, Keynote, and Notes. Of the 16 teachers surveyed, ten said they would use mobile apps in the future.

Initiatives with good results are duplicated wherever feasible. The American University of Kuwait (AUK) is taking the lead in maximizing benefits of apps to mobile devices used by students. The market explosion of smart phones has created a climate in which students are flaunt their devices and take pride in demonstrating use of installed apps.

Ellucian (2012) is AUK's partner in the mobile apps initiative. The university can deploy "starter" apps that come with a provided framework to access course schedules, grades, campus maps, and events. AUK and institutions contracted with Ellucian can download apps through shared arrangements with the company's code repository. There are presently 1,000 active MyU users at Gulf University for Science & Technology (Kuwait) and the College of Business Administration at Kuwait University. "I thought of a mobile technology platform whereby faculty and students can interact," recalls Alessa. The app, the originator explains, permits faculty to communicate with students outside the classroom about campus events, announcements, assignments, and is a forum to discuss course content.

10 b) eLearning Simplifies College Algebra

It is unnecessary to administer a survey to ascertain students' feelings about mathematics (math), as in college algebra. Despite their sworn "abhorrence" of the subject, math [monster] is a graduation requirement. So, every student must take it, live or die.

Why do students struggle with math? One argument is that, "mathematical intuition depends on linguistic competence and visuo-spatial representations." Simplistically, the human brain does encounter conflict when dealing with calculations and problem solving that are mediated by language. If all this reads esoteric, it definitely is. After all it is about math. To the students, it reads like "Greek." Then imagine the intricacies of college algebra! Really, an e-learning environment simplifies math. ??ilander and Rytönen (2005) reason that, elearning brings a new dimension to math education. It allows students to learn in authentic contexts, and by so doing extends knowledge to real environments. Daher (2010) echoes that, although mobile phones are used in education, they have been used especially in teaching math. Daher comments, "We are at the beginning of a new era for mobile phone integration into the mathematics classroom."

In their research, Genossar et al. (??008) studied the processes and experiences taking place within a mobile phone environment by examining how sociocultural and situated learning aspects are reflected in these processes and experiences. They made two findings. First, the contribution of the mobile phone environment makes available a dynamic mathematical application more available. Second, the mobile environment supports the execution of tasks that are closer to the students' experiences within the context of experiential learning.

Mobile devices used in mathematics e-learning include, a) distribution: sending the same document to all students, b) differentiation: sending different parametric definitions to each student in a systematic way, c) contribution: forwarding a function or mathematical data constructed by one student to a friend or teacher, d) harvesting: following the collaborative work of several students, constructing a set of functions or data that are related to each other, but different, and e) aggregation: combining functions or data that are related and presenting it in public. ??ble (1988) welcomes e-learning in teaching math, calling it, "authentic learning." The author maintains students understand math better, and apply study materials, when they are engaged in real world

11 Global Journal of Human Social Science

12 (G)

Results displayed a negative relationship between students' grade point average (GPA) and academic use of mobile applications. Students with lower GPAs tended to use their mobile devices for academic purposes more frequently than those upper GPAs. The results corroborate students' use of mobile applications outside the formal learning environment.

problems and contexts, Eble explains, provides an important environment for students' thinking.

Herrington et al. (??008) provide characteristics for authentic learning when solving (mathematically) world problems with mobile phones:

? Authentic contexts that reflect the way the knowledge will be used in real life, ? Authentic activities that are complex, ill-defined problems and investigations, ? Access to expert performances enabling modeling of

processes, ? Multiple roles and perspectives providing alternative solution pathways, ? Collaboration allowing for social construction of knowledge, ? Opportunities for reflection involving metacognition, ? Opportunities for articulation to enable tacit knowledge to be made explicit, ? Coaching and satisfying by the teacher at critical times, and ? Authentic assessment that reflects the way knowledge is assessed in real life.

13 c) Improving Teaching through eLearning

Just as e-learning is being adopted to improve education, the need to recruit more teachers becomes dire. UNESCO (2012) data shows the world is facing a massive recruitment problem. According to the international agency, the world will need approximately 8.2 million teachers by 2015. Of this number, 6.1 will be replacements; 2.1 million will be newly hired teachers.

These numerical challenges are compounded because they are more severe in developing countries where there is high unemployment, poverty, and unreliable infrastructure. Indeed, the teacher crisis extends to all levels of education.

Besides, a large number of classroom teachers around the world are underprepared to meet the educational goals of the 21 st Century. And notwithstanding emphasis by educational institutions to incorporate e-learning into education, many teachers remain dogmatic to the status quo, which asks students to memorize information from textbooks. Parenthetically, teachers who do not embrace e-learning fail to impart to students technological skills for success in life.

As UNESCO and other international organizations have put forth, enrolling and teaching students in the classroom is only half of the challenge in education. The other half is to adopt e-learning. To combat the imminent shortage of "technology savvy" teachers, UNESCO is leading the way for "Mobile Learning for Teachers," based on the use of mobile phones.

students do not even have books. But "miraculously," they own mobile phones. This setting is mostly common among students in traditional schools or those who cannot afford to attend "privileged" private schools. In the final analysis, teachers have a charge: use elearning to provide education for disadvantaged students.

In Lahore (Pakistan) a NNESCI project aids teachers to use short message service (SMS) mobile phone technology to send educational content to disadvantaged learners. The sole requirement is that students complete face-to-face literacy training at designated education centers.

Through SMS technology, teachers help students retain and solidify newly acquired literacy skills. Teachers in Bangladesh rely on the Boat School to bring education to 87,000 students (and families) in marginalized communities who rely on mobile phone technology.

Teaching sometimes yields unintended positive benefits. In the Middle East, students participating in different mobile learning initiatives teach their parents how to use mobile devices more productively. The acquired knowledge gives parents a sense of empowerment and connectedness. In Kuwait, parents or guardians of students at Gulf University for Science & Technology can use online resources to check the academic progress of their sons and daughters and relatives.

Undeniably, teaching does not end in the classroom. It extends to other forms of learning vital to human development. European Union (EU) countries have launched the project, Bite-sized Learning Opportunities Mobile Devices (BLOOM). BLOOM targets "brick-and-mortar" schools based on learners' needs. The project is in response to learners whose regular work schedules make it impractical or impossible to attend traditional classes.

At the University of Leeds School of Medicine (Britain), educators use mobile phones to carry out speedy assessment tutoring modules. This development is intended to accommodate students working in health clinics and hospitals, but scattered throughout the region. This accommodates students' inability to attend courses or communicate directly with on-campus professors.

Communication is a prerequisite in education. It forms an invaluable part of professional development. UNESCO papers confirm that mobile phones can assist the teacher with more complex tasks, particularly in providing professional development and in-service training. The use of mobile phones is most effective when used to facilitate or mentor. Mentoring requires a "master teacher" to observe the practice of less Preparing teachers gives the latter the opportunity to do their job in a satisfying way, even against odds. In certain developing countries, many experienced teachers in order to provide constructive feedback.

14 (G)

Mobile phones also serve two purposes, a) They alleviate costs associated with mentoring by increasing the number of teachers a mentor can support, b) They reduce the time required for observations and meetings. Additionally, mobile technology empowers teachers to participate in online professional communities and to collaborate with peers. They are able to pose questions and share video images and lesson plans. Teachers use platforms such as Facebook, Google+ or Twitter. d) Middle East eLearning Quality Assurance Elango et al. (2008) attest that Bahrain, Oman, UAE, Saudi Arabia and other countries in the Middle East are assessing e-learning initiatives to attain international standards. The researchers concede that the region's virtual universities are "directly on the computer networks to offer online education."

In a survey directed by professor Elango et al., and jointly administered at Majan College (Oman) and Skyline College (US), the respondents said they were not able to indulge in any kind of "malpractice," such as cheating. The investigators conclude the results demonstrate a unique strength of e-learning.

In compliance with course requirements as a component of e-learning, the survey found that students submitted their assignments on time. However, a shortcoming of e-learning is that, teachers and students do not meet to discuss course content and subject matter frequently.

The knowledge level of the teachers is equally important in an e-learning environment. In their responses the students stated that, teachers displayed knowledge of their subject matter, prepared well for class, and possessed good communication skills. It was not uncommon to establish that, majority of students make use of e-books and e-journals to prepare for classes. They also use Blackboard/WebCT/KEWL. Students admit that e-learning is innovative, fun, and contemporary.

eLearning assessment is a serious undertaking at the University of Manchester (Britain). For the second consecutive year, Middle Eastern languages (chiefly Arabic) have introduced an online portfolio assessment with customary end-of-year examination and in-class activities. Three reasons motivated online portfolio assessment, a) The need to keep students on their toes when learning, b) Avoiding dropout by spreading assessment throughout the year, and c) Promoting learning autonomy (especially outside classroom) necessary for language training.

To assess the three-prong e-learning initiative, short and regular online tests were introduced during the first and second semester, along with reflection tasks. The tests were aimed at alerting students on specific gaps in their knowledge, while keeping a learning journal to help them develop self-evaluation and reflective skills.

Students completed the tests in their own time, and from home. The exception was translation where students could easily take unfair advantage from web translators and similar tools. Invigilated (proctored) tests were used in the second semester to ensure fair assessment. Oral tasks (students recording themselves in Arabic) were favorably received by students. Pools of questions were created to avoid identical tests.

Feedback showed that regular tests challenged students' learning (85 percent); made students revise more seriously than non-assessed exercise (70 percent); and tasks increased student awareness (75 percent). Other benefits included development of Arabic keyboard skills. The completion of tests (off-campus) and students' ability to use mobile devices minimized errors.

15 e) Future of Middle East eLearning

It is simplistic to say the future of e-learning in the Middle East is bright. Truly, it is brilliant and awash in resources as governments and private organizations support e-learning programs. Saad (2013) states the Middle East, "Is a thriving hub of e-learning, with governments and private schools avidly investing in elearning content, tools, and platforms."

Saad welcomes the sharp increase in academic digitization programs and adoption of e-learning by higher education to give students opportunities to learn at their own pace. The writer believes the Middle East has become a "dynamic leader in the e-learning market." Unsurprisingly, Middle East e-learning revenues for 2011 reached \$378 million. Ambient Insight estimates that e-learning revenues will reach \$560 million by 2016.

Increased spending spells the popularity enjoyed by e-learning in the Middle East.

Aware of today's prescriptions, 3P Learning has unveiled a worldwide popular "Mathletics" program in Arabic. The program is in response to students' engagement with e-learning to improve their mathematical knowledge computer skills. "Mathletics" has advanced features: Students can alternate between English and Arabic. 3P Learning has an Arabic/English (bilingual) feature to further enhance the users' experience and improve students' numerical skills.

Besides, teachers benefit from "Mathletics." Apart from controlling students' learning space, the program allows teachers to set the relevant curriculum for students and to tailor the course to suit teaching needs. Another teacher's feature is an interactive "mark book" that allows teachers to monitor students' progress. Presently, 3.5 million students use "Mathletics" in about 150 countries, including Saudi Arabia, UAE, Qatar, Oman, Bahrain, and Kuwait. In mid-2013, Lithuanian Eruditus began early stages on Loomideck, an integrated e-learning platform. Maynard (2103) recounts the company's interest in the Middle East. In partnership with Young Digital Planet, Eruditus in Dubai (UAE) launched Cloud Campus at Hamdan Bin Mohammed University (Saudi Arabia). The aim of Cloud Campus is to increase literacy in the Middle East through e-learning. After six months in service, the program's future is promising. More Middle East institutions are lined up to be clients.

16 Global Journal of Human Social Science

In the Middle East, e-learning is not a luxury. Nor is it a nuisance. Rather, e-learning is a curriculum imperative to bring about quality education and to raise education standards. Chanchary and Islam (undated) are computer science professors at Najran University (Saudi Arabia). The professors welcome Saudi Arabia's policy requiring universities to provide excellent education for an increasing population. Chanchary and Islam refer to a 2008 survey, which calls for a national plan to incorporate e-learning into education. The trend is loaded with "goodies" and goes beyond Saudi borders to other Middle East countries.

Transformation education is the future. Digital culture is influencing e-learning. Most currently used elearning programs were designed for the 19 th and 20 th Century. The future belongs to e-learning programs designed

for the 21 st Century. eLearning systems of the future should, consequently, surpass reading, writing, math, and science. They should explore the role of digital literacy, critical thinking and problem solving, and new approaches to collaboration, communication, and creation.

Nagel (2011) accepts that worldwide higher education leads e-learning expansion through technology purchases and services. In the US, the rule is that e-learning schools must meet the requirements for all enrolled students, which translates into future elearning resources. On the other hand, spending for prekindergarten to secondary school e-learning was \$2.2 billion in 2010, and is expected to hit \$4.9 billion in 2015. A leader in education, other countries are likely to follow US moves for their own e-learning priorities.

Evolving e-learning trends will dominate education. One developer, Ferriman (2012), e-learning developer and founder of LearnDash (WordPress based provider), writes in the article, "The Future of E-Learning," that e-learning products include Articulate Storyline and Adobe Captivate 6, and WordDash.

Meanwhile, MOOCS (Massive Open Online Courses) is in contract with reputable colleges and universities to use MOOCS. Although the start has been rocky for the e-learning software provider, analysts claim MOOCS can only get better. Ferriman goes on, "My prediction is that e-learning software providers and instructional designers will be in high demand as MOOCS grows in size and familiarity."

17 V. Conclusion

Middle East countries are not idle when it comes to incorporating e-learning into education. The governments have continued to provide indispensable resources to put in place e-learning technology to establish a first-class education for their citizens. On their part, the universities are incorporating e-learning into education, making it possible for students to study and complete assignments and to take tests or examinations at remote locations.

eLearning has also benefitted learners who are not able to attend traditional classes due to work schedules. For instance, workers receive additional professional training through interactive learning to improve their skills and to advance in career. Other learners have utilized e-learning in English and Arabic language learning and have furthered translation aptitudes. That e-learning has simplified math for students thanks to "Mathletics" is phenomenal.

In a world plagued with inequality and poverty, e-learning has made a difference. In some parts of the world, underprivileged students have no choice than to attend traditional schools. On the other hand, privileged students attend schools that are infused with modern technology to support learning. With e-learning, underprivileged students, too, receive instruction with the use of mobile phones that even their parents have learned to use.

Since teaching needs teachers, e-learning contributes to teaching effectiveness. An important component of teaching, faculty development enables the teacher to acquire enrichment through further discovery and by learning from peers. In this regard, elearning is suited for the "master teacher" to interact with a group of congregated teachers, instead of individual teachers paying for the prohibitive training costs. And at a time where there is a shortage of qualified teachers, elearning provides a technological remedy.

The technology enables teachers to establish two-way communication with students and to monitor students' success. Students, meanwhile, are freer in their communication because they are not impaired by the physical presence of their teachers, thus giving them self-pride and a degree of independent thought. In fact, the teacher can send announcements to students, including during break periods.

eLearning has its critics. It is said the technology eliminates conference or discussion times when teachers and learners can address issues pertaining to courses or subject matter. Students, likewise, have raised questions about late submission of grades on tests/exams and assignments. And in certain cases, institutions have been slow or shown little interest in incorporating e-learning into education. There are instances where teachers are yet to use apps to take advantage of e-learning. Middle East countries do not always need to reinvent wheels in the domain of e-learning. There are concrete initiatives with documented results. In Mexico, e-learning has improved literacy levels, and in India, underprivileged students attending deprived schools receive competitive education thanks to mobile devices. Britain and South Korea have implemented e-learning programs that can be replicated. In one survey, 67 percent of students responded they use smart phones or tablet for academic purposes.

18 Global Journal of Human Social Science

In the main, e-learning has made significant advances in the Middle East. Countries are open to evolving technology and to have it available to institutions. Contracts have been signed with giant telecommunications giants, and others are on the horizon. Middle East countries consider it a national priority to provide excellent and competitive education for its citizens.

To this end, funding for e-learning is estimated to be nearly \$600 million by 2015, while mobile phone penetration is projected to reach 125 percent during the same period. This is all music to the ears of telecommunications companies doing business in the Middle East. Exceedingly, the region is a reliable clientele for the telecommunications industry and elearning technology.

19 Global Journal of Human Social Science



Figure 1: ©

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