Use of Emerging Mobile Learning Technologies to Teach Females in the 21st Century

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Abstract:

It is a well known fact that for countries and economies to prosper in the 21st century, the citizens of the countries have to be well educated and be creative and innovative. This implies that females as well as males have to be educated so that they can become productive citizens. The use of emerging learning technologies in E-learning, Online Learning, and Mobile Learning will allow educational institutions to reach females students in their local communities to get an education rather than having them leaving their communities to learn. Hence, females will be able to continue to maintain their Islamic and social values and learn at the same time. Delivering learning materials to females will give them access to learning materials and at the same time, they will improve their expertise on the use of information, communication and mobile technologies. Previous studies have shown that if implemented properly, mobile technology can be used to delivery instruction and to provide support to learners. Using emerging learning technologies to reach females will place learning in the hands of females to improve themselves and apply what they learn to help family members and other members of society to become educated. Designers of learning materials for females must take into account the Islamic, cultural, and moral values of the society so that quality education is provided to female learners.

Introduction:

As we move into the 21st century, the use of emerging learning technologies such as mobile devices, laptop computers, and palmtop computers is having a major impact in distance education. These technologies allow students to access learning materials and use the internet to collaborate with each other. As a result, there has been significant growth in E-learning and Mobile Learning in education and training. These technologies will allow organizations to reach students who do not have access to face-to-face education and at the same time, provide flexibility in the delivery of education. Examples of students who will have access to education include females, individuals who live in remote rural areas and those who have family responsibilities. Some muslim females are not comfortable in a group face-to-face learning environment where males are present. The use of distance education technologies such as mobile technology will allow muslim females to learn from a distance.

All humans have the right to access learning materials and information to improve their quality of life regardless of their gender, where they live, their religion, their status, and their culture. Mobile learning, through the use of mobile technology, will allow female citizens of the world to access learning materials and information from anywhere and at anytime. Learners will not have to wait for a certain time to learn or go to a certain place to learn. With mobile learning, female learners will be empowered since they can learn whenever and wherever they want. Learners can use the wireless mobile technology for both formal and informal learning where they can access additional and personalized learning materials from the Internet or from the organization server. Female workers on the job can use the mobile technology to access training materials and information when they need it for just-in-time training.
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Gulf countries need to develop a sense of urgency to educate the majority of the population to join the workforce to make the countries better prepared for the challenges in the 21st century. There is a need to produce a modern, highly trained and motivated workforce while maintaining traditional Islamic values and morals. The education system must reach out to the females so that they can become productive and contribute to society according to the values of the culture. The best way to do this is to use emerging learning technologies to implement E-learning and mobile learning. However, there must be more research on the use emerging learning technologies in Saudi Arabia and other Gulf countries to prepare the systems and infrastructure to reach females and other students (Al-Harthi, 2005).

In some parts of the world, emerging learning technologies are being implemented as a way to improve the quality and expanding access to education for previously underserved sectors of the population. However, to achieve success, teachers and students need to develop new skills and modify their attitudes that will contribute to successful implementation of E-learning and mobile learning. At the same time, educators need to become more aware of the need to design programs that respond to the specific needs of learners from diverse locations and cultures. This group of learners should include females so that they can have access to education and at the same time, develop their information and communication technologies skills to function in the 21st century.

There are many benefits for using emerging learning technologies for teaching females. The most important benefit is that females will have access to quality education from anywhere and at anytime without having to leave their communities and families for extended periods of time. This will maintain the existing quality of life while females obtain an education to contribute to the society and the workplace. Also, females will gain expertise on the use of emerging information and communication technologies when they learn with the technology. The females can then use the expertise they acquire to teach their children about the technology and those that go into teaching will be able to model the use of the emerging technologies in the classroom for future workers and teachers.

This paper will examine the use of emerging learning technologies to teach females and other students and will cover the following topics: use of emerging learning technologies in education, how to design learning materials for delivery on emerging learning technologies, the skills required by students and teachers to function in a technology-based learning environment, and research studies on the use of emerging learning technologies in education.

**Literature Review**

**Mobile Technology in Education**

With the rapid development of technology, education is making the transition from print to e-learning to mobile learning which is defined as the delivery of electronic learning materials, with built-in learning strategies, on mobile computing devices to allow access from anywhere and at anytime (Ally, 2004). The shift from print materials to E-learning to mobile learning is possible because of the rapid development of computer and communication technologies. As the demand for access to education grows and increasing numbers of adults return to schools for education and training, the need for new technologies to facilitate learning is becoming more important. Mobile learning provides flexibility: in time and location of study; in availability of information and resources; and in forms of communication, such as synchronous and asynchronous, and using various types of social interaction methods through the Internet.

The use of mobile technology in education is a recent initiative due to the availability and rapid advancement of mobile devices such as smart phones, PDAs,
palmtop, tablet PCs and handheld computers. A key benefit of m-learning is its potential for increasing productivity by making learning available anywhere, at anytime. However, it is a delivery technology that is currently untapped in the education field. As distance education students increasingly use mobile technology for everyday and work life, educational organizations must design courses and learning resources for delivery on mobile devices. When designed properly, learning materials can be delivered on a variety of technologies to allow students to learn and access course materials at their convenience.

There has been limited research on the use of mobile technology in distance education (Ally, et al., 2009; Ally, 2008; Ally et al., 2008; Yang et al., 2008). Previous research on the use of mobile technology in education looked at applications in classroom settings. It has only been recently that studies of the use of mobile technology have moved outside the classroom. Dong and Agogino (2004) concluded that m-learning is most useful when it links real-world situations to relevant information resources. They explored how downloading key information to a PDA (Personal Digital Assistant) would help to enrich the learning experience of students on a field trip. They also suggested the scenario of students at a museum being able to use their PDAs to provide relevant information. Waycott and Kukulska-Hulme (2003) also studied the use of PDAs outside the classroom. They focused exclusively on students’ experiences with reading course materials and taking notes using PDAs. They found that using PDAs for reading and note taking was less than ideal. Students were getting lost in the documents, and were unable to make notes as comprehensively and easily as they could with a paper copy of the materials. However, their study was conducted using a PDA which at the time was relatively affordable and offered most features common to PDAs, but which didn’t come close to offering the technology available today. The technology of PDAs has improved dramatically in the past three years. Screens are bigger and better, and systems have more memory, more multimedia capabilities, and better methods for inputting data. Given the constant advancements in this field as well as the plethora of possibilities – PDA types with individual capabilities, various systems and applications, and methods for delivering digital library content - there are more questions than answers in the mobile learning field. According to Clyde (2004), the challenge is to identify the forms of education and training for which mobile learning is particularly appropriate, the potential students who most need it and the best strategies for delivering mobile education.

Although mobile learning is a recent development and there have been some research conducted in this area (Attewell, 2005; British Educational Communications Technology Agency, 2004; Keegan, 2002; Savill-Smith & Kent, 2003). Preliminary investigations report on the limitations of mobile devices especially the limitations of the small screen size, but also limited processing power, battery life, and memory capacity. Other problems have been encountered because of the wide range in operating systems (Palm OS, Windows CE, Linux) and the differing input devices (Holzinger, Nischelwitzer, & Meisenberger, 2005). Overall, the research on the educational use of mobile devices is very limited and at the early stages. However, research shows that mobile devices can be more easily integrated across the curriculum than desktops computers (Moseley & Higgins, 1999). This is possible since many students already have mobile devices and the wireless technologies do not need extensive infrastructure as desktop computers. The mobility enabled by these devices can also foster a greater feeling of work ownership by students.

The goals and pedagogical approaches when using emerging learning technologies must be clear as in traditional teaching (British Educational Communications Technology Agency, 2004). Teachers find they have greater confidence in supporting students and increased access to data from anywhere combined with increased efficiency and accuracy (Perry, 2000). Brown (2004) reported that there is already value of using mobile phones in the management of distance learning. Taylor (2005) is researching mobile devices use in
teacher education in Kenya. White (2004) has conducted research using mobile devices in disadvantaged communities in a developed country. English as a Second Language (ESL) and other languages are also being taught using mobile devices. Song and Fox (2005) found significant improvements in learner performance of language tasks. Others have successfully used mobile devices for teaching pronunciations and listening skills (Ally, et al., 2009; Uther, Zipetria, Uther, & Singh, 2005). Tense ITS is an adaptive system used for teaching English tenses to ESL learners, with significant positive outcomes (Bull, Cui, Roebig, & Sharples, 2005). Research has also looked at the adaptation of content for mobile learning using learning objects and creating appropriate metadata (Ally, 2004; Friesen, Hesemeier & Roberts, 2005).

**Benefits of Using Mobile Technologies**

With the use of wireless technology, mobile devices do not have to be physically connected to networks to access information. Mobile devices are small enough to be portable which allow users to take the devices to any location to access course materials. Because of the wireless connectivity of mobile devices, a female student can interact with other students from anywhere and at anytime to share information or to work collaboratively on sections in a course. Use of mobile devices to educate female students has many benefits because the wireless devices allow for mobility while learning. Below is a list of benefits of using mobile technology to educate females.

Since learning materials are developed in electronic format it is easy to update the learning materials. Also, since females can use their mobile devices to access the learning materials from a central server, they can receive these updates as soon as they are made.

There will be consistency in learning since all students will access the same learning materials from a series of educational networks. This will allow the transfer of learning materials between educational institutions and across different regions in a country.

Learning is flexible since females can be located anywhere and complete their education as long as they have the technology to access the learning materials. This is possible because of the wireless connectivity of mobile technology.

Females can access learning materials anytime so they can select the time they learn best to complete their coursework.

There will be more opportunities for informal learning for immediate application since females will be able to access the learning materials as needed.

Developers of learning materials can take advantage of the computing power of the technology to personalize the learning experience for individual female students.

The communication capabilities of the emerging technology will allow females to connect with each other to collaborate during the learning process. Also, females will be able to share their expertise and conduct peer tutoring.

Since the learning with emerging technology will be learner-focused, females will be more active during the learning process which will promote higher-level learning. This will help solve the problem of female students not being active in a classroom setting.

Since most female students already have mobile devices, educational institutions can take advantage of this opportunity and design and deliver courses for delivery on different types of mobile technologies (Ally & Lin, 2005).
Research Studies Completed on Mobile Learning

The following sections describe recent research studies that were conducted on the use of mobile technology in education.

Teaching English Grammar on Mobile Technology

A recent research project (Ally et al., 2009) investigated the use of mobile phone to deliver English grammar lessons to students. The project involved a ‘before-after’ design following the achievements of target groups using pre- and post- tests on three different student groups (n=46). Subjects were given a pre-test to determine their current level of expertise in English grammar. After completing the grammar lessons, subjects were given a post-test and a retention test. The project was implemented in three different institutions with students learning English is a Second Language (ESL). All students completed the same lessons and also filled out a questionnaire to give their opinions on the mobile technology and mobile learning. The course content consists of 86 lessons and related exercises teaching the basics of the English language, ranging from the difference between “is” and “are” to verb tenses, countable nouns, and other aspects of basic grammar in the English language. The content is interactive where students are given constant practice using a variety of question types. Four different types of questions were used to make the grammar exercises more interactive, easy to access in the mobile device and to test the students’ ability. They were true/false, multiple choice drop downs, changing the order of sentences, and matching questions.

Students completed three grammar tests during the study. The pre-test was written before the students attempted the lessons on the mobile phones. The average score on the pre-test was 15 out of 20. The post-test was given immediately following the completion of the ten assigned grammar units. The post-test average was 17.7 out of 20. A retention test, in the same format, was given to the students one week later. The average score was 18 out of 20. A slight improvement was shown after the students accessed and studied the grammar units on the mobile phone. There was further improvement on the retention test which was administered one week after the post-test.

Most participants in the study expressed a positive experience using the mobile phone to learn English grammar. In the descriptive responses, they indicated that the use of mobile technology for ESL would be a good supplementary medium of learning such as, when waiting for the bus or being on the bus or whenever there is some spare time. The flexibility of anytime availability of the mobile ESL materials was appreciated by the students. One major concern expressed over the user of cell phones to access the Internet and the lessons was the cost of Internet access. Availability of Wi-Fi capable phones should address the concern on the cost of access. Some students provided feedback on the limitations of the mobile phones. Recent developments in mobile technology, such as the virtual keyboard and screen, could solve the problem with the input device and screen size.

Subjects were asked to provide feedback on which type of questions they found suitable for mobile devices. The majority of participants reported that true/false and multiple choice-type questions are suitable for mobile technology. Ninety-three percent of participants thought that true/false questions were suitable for mobile devices while 75% of participants thought multiple choice questions were suitable for mobile devices. Almost half (47%) of the participants found word-ordering type questions suitable for mobile devices. Only 18% of participants thought that matching-type questions were suitable for mobile technology. The main reason given for the least preference for matching-type questions was inconvenience. Matching-type questions posed a need for frequent scrolling back and forth as the screen was too small to fit everything on one screen.
The results from this study show that there are many benefits in using mobile technology for learning. One of the most important benefits is learning anytime and from anywhere and providing immediate feedback to students. As students work through exercises one by one, they can receive instantaneous feedback about how they are performing (after clicking “Submit” they can find out which questions they got wrong, etc.); and even if they get questions wrong, they can try again and learn from their mistakes. Students can cross-reference to other sites and resources. Mobile devices with constant online access (wireless, etc.) enable users to surf the internet and view related websites that may assist them in their learning.

Using mobile devices to access the online course content increases motivation and opportunity for learning. Having the content online and right at students’ fingertips practically just one click away allows them to learn wherever they are, despite the constraints of family responsibilities, busy work schedules, travelling, etc. Moreover, as students achieve success and progress through the exercises, they may be motivated to learn more of the English language. A benefit of learning a language with communication technology is the learning that happens between individuals, or learning in a virtual group. Language learning should provide the opportunity for interaction between students. Mobile delivery of language learning should include opportunities for students to talk to other students and the instructor to practice their language skills. Mobile devices are becoming an integral part of teaching languages. More and more people are using internet capable mobile devices such as cell phones and PDAs. Using these already widespread devices for teaching/learning activities can be an attractive option for busy females. They could utilize their spare time for productive usage such as learning grammar, when they are away from school and home. Providing opportunity for females to use mobile devices for learning in their private time allows the learning to be individualized to some degree; if they are having trouble with a section, they can re-read it and do the exercises again without fear of delaying their fellow students (or asking embarrassing public questions). If they are feeling confident in a section, they can skip it and not face sitting through a redundant lecture from the teacher.

Delivering a Computer Course on Mobile Technology

Another recent study looked at use of mobile phones to deliver a course in computer science (Ally & Stauffer, 2008). The purpose of this study was to determine the devices that are being used by students, which parts of the course they are accessing using mobile devices, their experience with mobile learning, and how useful they thought the mobile devices were to access course materials. Another important aspect of this research project was to explore the students’ perception of these offerings and determine if the improvements to mobile delivery are meeting the needs of students using mobile devices. The target group was comprised of 400 students taking a variety of online computer science courses. These students were selected because they all use online course materials for their studies and were currently active in the courses at the time of the study. The option to access their course materials using any mobile device was made available along with a request to complete the survey form. This was completely optional for the courses and it was hoped that at least 10% of these student would respond. At the end of the study, a total of 27 students had completed the survey. A check of the web server access logs shows that there were approximately 100 hits a day on the mobile device specific files.

Robertson (2007) determined that even though mobile technologies are now extremely popular, the assumption that this would lead to a preference for their use with online learning has not yet been well tested. For the purpose of this study, mobile devices were not provided to students. One of the objectives of the research was to determine some of the types of devices that students currently own and use. The specific research design
was one of experimentation using the sampling model. An assumption was made that the sample selected would be representative of the student body and it is expected the results could be generalized to the rest of the students.

The initial questions of the survey involved the type of device, their connection plans, the pages accessed, the typical number of times the students used their mobile devices to browse the Internet, and a description of any problems encountered accessing the course materials. There were no critical errors in access. While some students needed to make some minor adjustments to their settings, all students were able to access the course materials web pages using their mobile devices. When students were asked whether they found it useful having access to course materials from a mobile device, the majority of students either strongly agree or agree that it is useful to be able to access course materials with mobile devices. In other questions on the survey, most students responded that they either agreed or strongly agreed that the use of the mobile device to access the course materials was useful and provided both flexibility and convenience. The students appreciated the convenience of being able to take the course work to wherever the students were, and whenever they were able to access their course work was of significant value, as noted in both the comments and the statement numbers.

**Designing Learning Materials for Emerging Learning Technologies**

**Learning Theories for Designing Learning Materials**

As noted from the summary of the studies above, it is important that learning materials be properly designed for delivery using emerging learning technologies. The design of learning materials for these technologies must follow good learning theories and proper instructional design for the learning to be effective. The 21st century female learner will benefit from well designed learning materials so that they can learn from anywhere and at anytime using mobile technology. A major benefit of using wireless mobile technology is to reach learners who live in remote locations where there are no schools, teachers, or libraries. This is beneficial to females learners who have family responsibilities and who cannot travel to attend face-to-face schools. Mobile technology can be used to deliver instruction and information to these remote regions without having people leave their geographic areas. This will benefit the families and communities since female students will not have to leave their families and jobs to go to a different location to learn or to access information. At the same time, female business owners can access information and training on how to increase productivity and improve the quality of their products.

When designing learning materials for delivery on emerging learning technologies, designers must follow proven learning theories. Designers must take the best of learning theories including behaviourists, cognitivists, constructivists, and humanists learning theories. Following the different theories will make sure that effective training strategies are used during the learning process. A variety of learning strategies should be used to motivate learners, facilitate deep processing, build the whole person, cater for individual differences (especially females), promote meaningful learning, encourage interaction, provide feedback, facilitate contextual learning, and provide support during the training process.

**Behaviorist Theory**

Behaviorists look for observable behavior in learners and place emphasis on feedback in learning. Some guidelines for designing training materials based on behaviorist theory include: (1) Inform females of the learning outcomes so that they can set expectations and can judge for themselves whether or not they have achieved the outcome of the mobile learning lesson. (2) Evaluate females’ performance to determine whether or
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not they have achieved the learning outcome. (3) Sequence the learning materials appropriately to promote learning. (4) Provide timely feedback to females.

Cognitivist Theory

Another psychological theory of learning that one should follow is the cognitivist school of learning. According to the cognitivist, designers must use learning strategies that allow learners to attend to the learning materials so that the information can be transferred from the senses to the sensory store and then to working memory and eventually to long-term memory. The amount of information transferred to working memory depends on the amount of attention that was paid to the incoming information and whether cognitive structures are in place to make sense of the information. So, designers must check to see if the appropriate existing cognitive structure is present to enable the learner to process the information. Also, because of the limited capacity of working memory, information on mobile technology must be chunked in pieces of appropriate size to facilitate processing. Information maps that show the major concepts in a topic and the relationships between those concepts should be included in the mobile learning materials. Because of the richness of information maps, they can serve as overviews for learning sessions using mobile technology and at the same time, compensate for the small screen size of mobile technology.

Guidelines for designing materials based on the cognitivist model of learning include: (1) Use effective strategies that allow females to perceive and attend to the information so that it can be transferred to working memory. (2) Information that is critical for learning should be highlighted to focus females’ attention. (3) The difficulty level of the material must match the cognitive level of the learner, so that females can both attend to and relate to the material. This will prevent information overload during the learning process. (4) Strategies that allow females to retrieve existing information from long-term memory to help make sense of the new information must be used. (5) Provide conceptual models that females can use to retrieve existing mental models or to store the structure they will need to use to learn the details of the lesson. (6) Information should be chunked to prevent overload during processing in working memory. (7) Strategies that promote deep processing should be used to help transfer information to long-term storage. Strategies that require females to apply, analyze, synthesize, and evaluate promote higher-level learning, which makes the transfer to long-term memory more effective. (8) Strategies to allow females to apply the information on the job should also be included, to contextualize the learning and to facilitate deep processing. (9) Information should be presented in different modes to facilitate processing by different learning styles and transfer to long-term memory. Where possible, textual, verbal, and visual information should be presented to encourage encoding and to cater for different learning styles. (10) Females should be given the opportunity to complete projects that use real-life applications and information. Transfer to job situations could assist females to develop personal meaning and contextualize the information.

Constructivist Theory

A recent theory of learning is constructivist, which suggests that learners should be active in the learning process since knowledge is not received from the outside or from someone else; rather, it is the individual learner’s interpretation and processing of what is received through the senses that creates knowledge. The learner is the center of the learning, with the teacher playing an advising and facilitating role. A major emphasis of constructivists is situated learning, which sees learning as contextual. Instruction must be done in context to allow learners to contextualize the materials during the learning process. If the information has to be applied in many contexts, then learning strategies that promote multi-contextual learning should be used to make sure that learners can indeed apply the
information broadly. Guidelines for mobile learning based on the constructivists’ school of learning include: (1) Learning strategies should keep females active and they should apply what they learn in practical situations to facilitate personal interpretation and relevance. (2) Females should be actively constructing their own knowledge rather than accepting what is given by the teacher. (3) For maximum benefit, learning should be made meaningful for females by relating to what they already know or something personal to the learner.

**Designing for Different Learning Styles**

The power of the computer and mobile technology could be used to cater for different learning styles. Intelligent agents could be built to determine the learning style of females and to adapt the instruction for individual female. Hence, there must be a variety of learning strategies to cater for individual differences, including female differences. Examples of individual differences include: (1) Concrete-experience learners who prefer specific examples in which they can be involved, and they relate to peers and not to people in authority. They like group work and peer feedback, and they see the instructor as coach or helper. These learners prefer support methods that allow them to interact with peers and obtain coaching from the instructor. (2) Reflective-observation learners like to observe carefully before taking any action. They prefer that all the information be available for learning, and see the trainer as the expert. They tend to avoid interaction with others. (3) Abstract-conceptualization learners like to work more with things and symbols and less with people. They like to work with theory and to conduct systematic analyses. (4) Active-experimentation learners prefer to learn by doing practical projects and through group discussions. They prefer active learning methods and interacting with peers for feedback and information. They tend to establish their own criteria for evaluating situations.

According to learning style theory, concrete experience relates to the learner’s preference to learn things that have personal meaning. Reflective observation learners like to take the time to think and reflect on the training materials and experiences, including the questions and comments posted by the teacher and other students. Learners who have a preference for abstract conceptualization like to learn facts and figures, and like to research new information on different topics. Learners who have a preference for active experimentation prefer to apply what they learn to real-life situations. They like to try things and learn from their experience. According to Kolb (1984), there are four learning style types. (1) Divergers are individuals who have good people skills; when working in groups, they try to cultivate harmony in the group, to assure that everyone works together smoothly. (2) Assimilators like to work with details, and are reflective and relatively passive during the learning process. (3) Convergers prefer to experiment with and apply new knowledge and skills, often by trial and error. (4) Accommodators are risk-takers, who want to apply immediately what they learn to real-life problems or situations.

A major challenge for educators and trainers is how to develop learning materials for delivery on mobile devices. The learning materials should be in manageable learning chunks and should make use of multimedia. One approach is to develop the learning materials in the form of learning objects and then link the learning objects to form a learning segment. There are many advantages of using learning objects in mobile delivery including: the learning objects can be re-used, a learning object can be changed without affecting other learning objects, and the learning objects can be stored in electronic repository for access from anywhere and at anytime.

**Skills Required by Teachers for Use of Emerging Learning Technologies**

The use of emerging communication technologies as a support tool in education is important to improve learning. This is critical in the education of females who will learn at
a distance but need to be connected to other students and the teacher. Depending on the geographic distribution of students, the teacher can use synchronous or asynchronous communication tools to communicate and interact with females. The support using the technology could be synchronous where the teacher and students interact in real time or asynchronous where the interaction is done at different times. In synchronous learning, support is provided real time using two-way text, two-way audio, or two-way video. The student and the teacher are able to interact with each other in real time. In the asynchronous mode, there is a delay in the communication between the teacher and students. For example, in computer conferencing students post their comments and other students and the teacher respond at a later time. Hence, as teachers start using emerging technology, their roles will change drastically to function effectively in the new learning environment (Ally, 2002). The teacher role will shift from a dominant person in front of the classroom to being a facilitator of learning by managing the learning process, providing one-to-one coaching to learners, and supporting and advising learners. As a result, teachers will have to be trained to use technology effectively in education.

Teachers must be trained on how to do good facilitators of learning. The teacher has to facilitate learning by role modeling behavior and attitudes that promote learning, encourage dialogues, and use of appropriate interpersonal skills. The teacher must be trained on how to recognize different learning styles and how to cater for the different styles (Ally & Fahy, 2005). An effective teacher must recognize that females have different styles when learning and some females prefer certain strategies than others. The teacher should use techniques that will satisfy and develop different learning styles and should include activities for the different styles to allow females to experience all of the learning activities. Also, appropriate learning support should be provided depending on the learning style of the learner (Ally & Fahy, 2002).

The teacher should be trained on the importance of feedback and how to provide effective and constructive feedback to females. Timely feedback is important in distance learning to maintain presence in the learning process. Teacher should make females feel comfortable and should show enthusiasm about the course materials to keep females motivated. As a result, appropriate training on when and how to provide feedback to learning is critical in learning. The teacher has to adapt to the learner needs and provide timely feedback to learners. Motivating females can be done by letting them know what they are learning is beneficial and then challenging them by suggesting additional learning activities.

The teacher must be a good problem solver to interpret students’ problems and provide solutions to the problems. This implies that the teacher must have the content expertise to solve content problems. The teacher solves content problems by keeping up to date in the field, interpreting learners’ questions, communicate at the level of the learner, provide remedial activities, and conduct follow up on help provided. Interaction with learners requires good oral and written communication skills. Also, the teacher is required to develop and revise courses on an on-going basis. As part of the problem solving process, the teacher needs good listening skills to understand what the learner is saying in order to respond to the learner.

The teacher must be trained on how to use the technology effectively to promote learning. This is critical in education since the teacher must model proper use of the technology. The teacher should be patience, project a positive image, enjoy working with females, and be a good role model.

The distance education teacher should include a variety of support strategies for the different styles to allow females to choose the appropriate strategy based on learning style. Concrete experience learners prefer experiences in which they can be involved and they
relate to peers and not to people in authority. They like group work and peer feedback and they see the distance education teacher as coach or helper. These learners prefer support methods that allow them to interact with peers and obtain coaching from the instructor. Reflective observation learners like to observe carefully before taking any action. They prefer passive delivery methods and see the teacher as the expert. They tend to avoid interaction with students. In terms of support, the reflective observation learners need the most direct support from the teacher since they see the teacher as the expert. Abstract conceptualization learners like to work with things and symbols and less with people. They like to work with theory and to conduct systematic analysis. Support from the teacher takes the form of coaching. Active experimentation learners prefer to learn by doing practical projects and group discussions. They like active learning methods and like to interact with peers for feedback and information. They tend to establish their own criteria to evaluate situations and things. For the abstract conceptualization learners, the teacher should provide opportunities to learn by discovery and be behind the scenes during the learning process. Some initial support is required but the amount of support may drop considerably during the learning process.

In distance education there is minimum face-to-face contact and the delivery system must be designed to allow students and teachers to communicate with each other in a virtual mode. One method that allows for interaction at a distance is online discussion forum; however, the teacher for the online discussion forums must know how to moderate the forums to compensate for the lack of non-verbal cues. The teacher role is critical for the success of online discussion forums. The teacher has to be both a facilitator and a role model for the forums. For example, as a facilitator, the teacher needs to recognize all students in the forum and encourage everyone to contribute in the online discussion so that the discussion is active. This can be done by acknowledging and commenting on at least one comment from all individuals. This will recognize everyone and, at the same time, encourage participation. There are many creative ways in which the teacher can use online discussion forums. The forum could take the form of question and answer, online collaborative project, or online review of existing work. In the question and answer format, the teacher posts a question and students answer the questions by posting comments. This is the most widely used format for online discussion forum. Another method for using online discussion forum is for the teacher to form groups within a class and ask each group to do a project as a course requirement.

The students will then interact with each other using online discussion forums to complete the project. Thirdly, the teacher could post a piece of work or a paper in the forum and ask students to critique the work or paper through online discussion. To develop females’ facilitation and cognitive skills, the teacher could select individual females to moderate a forum or create sub-forums and ask them to moderate the sub-forums. For very specific topics, the teacher could invite a guest moderator who is an expert on the topic to moderate the forum. Students will appreciate the opportunity to interact with the guest with current knowledge and skills in the field and will experience a different moderator in the forum.

Skills Required by Students for Use of Emerging Learning Technologies

Learning strategies are individual tactics used by students when they learn from instructional materials. These strategies may be unique to each student reflecting individual learning styles. Most students have experience of some type of classroom, group-based instruction. When learning in group-based environment, students develop and apply strategies to learn in the group-based mode. However, when students are placed in a distance education mode, they may have to use different or modified learning strategies to be effective learners in the distance education mode. Ally (2000) completed a study to...
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determine the skills required by distance education students to function in a distance education environment that uses emerging learning technologies. He interviewed a group of distance education students to determine the learning strategies they use when learning at a distance. The results revealed that students use a variety of cognitive strategies when learning in a self-paced course. Selection strategies are used to focus attention to identify relevant information. Rehearsal strategies are used to remember information by repetition. Organization strategies are used to build connections within the text. Elaboration strategies are used to expand the meaning and to build connections to prior knowledge/experience.

Conclusion

The use of emerging learning technologies can be used to reach females who do not have access to education and who would like flexibility in learning because of their busy schedules and family responsibilities. Educating females will allow them to fill unique roles in society to contribute to improve quality of life and to the workforce. Educating females is important for the Gulf countries to become more competitive in the 21st century. To improve access to learning the following must be completed: (1) Governments and businesses must make wireless connectivity for access to the internet affordable so that females can access the internet using high bandwidth. (2) Emerging learning technologies must be designed in a user-friendly way so that females can use the technologies to access learning materials. (3) Teacher must use the communication capabilities of the technology to allow female learners to interact and learn from each other. (4)

Designers of learning materials for females must take into account the Islamic, cultural, and moral values of the society so that quality education is provided to female learners. (5) Designers of learning materials must consider the learning style and characteristics of female learners when designing instruction.

In conclusion, the use of emerging learning technologies will become an integral part of education and educators need to make the transition to use the technologies. Reaching out to educate females will make sure that females have the knowledge and skills to prosper in society and in the 21st century. Females have a role to play in improving quality of life and in the advancement of society.

References


