Requirements for Implementing Moodle e-Courses in Public Schools in Saudi Arabia

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Abstract
This study defined e-learning, the e-classroom, the e-course, learning management, learning management systems, instructional content management systems, and the Moodle system for managing e-courses. It also reviewed examples of some American schools and school districts that used the Moodle system in education and teacher training. The study identified some of the requirements for implementing Moodle e-courses, which included issuing the Ministry of Education's directive requiring teachers to enroll in training courses on using Moodle, training teacher trainers, determining the training objectives and content, the necessary infrastructure for implementing e-courses, a budget for e-learning, preparing electronic instructional content, and levels of implementing e-courses and providing technical support to teachers. The study gave some recommendations.

1. Introduction

Day after day, the number of schools, teachers and students who entirely use e-courses or in conjunction with traditional courses in the classroom - especially in developed countries - is increasing. The e-course is characterized by being open twenty-four hours a day, seven days a week and on holidays, and its use is not hindered by time or place, as the student can use it any time he/she wants, day or night, anywhere in the world, and he/she does not need a special classroom. it is not necessary to have computers at school, as they can be used from home. The students can use e-courses several times, and they can constantly view the learning material of the course and lectures. The e-course increases the process of communication and interaction between the teacher and the students, and the students themselves. The students have a positive and active role in the e-course. They contribute to the material for the course, expresses their opinion on it, and comment on what other students have presented. The online course provides students with the opportunity to connect to a vast amount of information. E-learning programs are flexible and provide opportunities for enrichment and review. The teacher can use multiple teaching methods, such as simulation, exploratory learning, experience-based learning, and individual therapy. If he/she uses well-designed exercises and tests, he/she will be able to diagnose the difficulties that prevent students from mastering a particular point and provide them with additional or alternative explanations and exercises until they master that point (Carliner, 1998). The e-course facilitates the process of correcting tests and assignments for the teacher and provides him/her with statistics on the students' achievement and improvement as individuals and as a group. Parents can view the academic material presented in the e-course and their children's performance and results up to date (Al-Jarf, 2003a; Al-Jarf, 2006b; Al-Jarf, 2007c).

On the other hand, using e-courses requires great financial resources. Some of the systems used in designing e-courses are expensive. The price of one program exceeds a thousand dollars. Subscription fees for some e-course management systems are also high. For example, the monthly subscription fee for a single course website on the MetaCollege network is forty dollars, and for a department website, it is six hundred dollars. Preparing the contents of the e-course requires training, time, effort, and the ability to innovate on the part of the teacher. In order for teachers and students to be able to use an e-course, they must receive some training and need ongoing technical support as they use the course.

In order for students to continue using it, they need constant motivation and encouragement from the teacher. The teacher must use different methods to engage them. Students should have an incentive to continue using the e-course. They must be able to take responsibility and be self-reliant and be willing to communicate through writing. The lack of computers or access to the Internet may prevent all students from benefiting from it. The network can go down at any time and the network connection can be slow.

Regarding the status of the use of e-courses in the Kingdom, the results of a study conducted by Al-Jarf, 2004; Al-Jarf, 2008b) on a sample of faculty members in Saudi universities indicated that there are 4 categories of faculty members. The first category (1%) includes professors who use e-learning on their own, are self-motivated despite their universities not participating in e-course management systems such as Blackboard & WebCT.

The second category includes professors in colleges of education and library science departments who are specialized in educational technology, and others who are not specialized in educational technology but have an idea about how to use e-courses, although they do not use them, or have used them for a short period and then stopped using them due to the lack of technological infrastructure. Some universities did not prepare the programs and do not have any partnerships with the companies and portals that offer e-courses. There is no laboratory in every department, and the laboratories that are available in some departments are not equipped with computers. If they are equipped, the computers do not work, and if they work, their settings need to be adjusted. If the Internet is available in the laboratory, it is either slow or there is no connectivity and does not serve its purpose. At King Saud University, for example, there are laboratories, but they are used for the computer applications course. The rest of the students cannot use it due to the large numbers registered in the courses. The participants reported that the idea of connecting to the Internet from the university and home is useless because the network is slow. In addition to the lack of Internet service for male and female professors, the lack of devices for some professors in their offices, the lack of devices for others at home, and the lack of technicians specialized in technical support for e-learning.

Other factors are related to students. Many students are traditional, do not care about using technology in education, and do not have experience in technology and with the new learning and teaching style. Many students do not know English and have not been trained to use the Internet or even the computer. Some of them do not have a computer.

Some instructors in this category mentioned personal factors that prevent them from using e-learning, such as they are not currently teaching any courses because of their involvement in administrative work, or teaching courses that are not suitable for e-learning, such as supervising projects and theses, and being busy preparing their personal homepage. This group has some negative attitudes towards using e-learning, such as unwillingness to use e-learning because using it requires additional time and will increase their teaching load. They are also unsure about the effectiveness of e-learning, and whether students did and completed the assignments they submit themselves, in addition to administration's lack of encouragement and support.

As for the third category, it represents the vast majority of faculty members who do not know how to use e-courses and have a desire to use them, but they face some obstacles that including lack of training courses on using e-courses. Even if there are training courses, they are unable to join them due to their administrative and excessive office work. Professors are not free to attend training courses.

Members of this category mentioned personal obstacles such as lack of mastery of technology, inability to use computers and the Internet, and lack of knowledge of the uses of e-courses, the

Internet, and e-mail in education. Some reported that they did not have time to learn, while others were busy with administrative work, councils, and lectures, and did not devote time to trying out e-learning. In addition to lack of management support and encouragement. The introduction of distance education requires permission from the Ministry of Higher Education. The college is not prepared for e-learning.

They mentioned other factors such as the lack of a budget for e-learning, the lack of curricula for e-courses and specialists in designing e-courses. They added that e-learning requires a collective work team (i.e. the need for all faculty members within the department and college to participate in developing courses and continue where colleagues left off). The course material must be approved by the Department and College Councils so that it does not become a personal effort not supported by others. There is also a need to set standards and criteria for the use of e-courses.

The fourth category constitutes 5% of the faculty members, who refuse to use e-learning because of their preference for using traditional methods of instruction and using books over the Internet. Some of them feel that using e-learning will increase their teaching load in addition to their existing burdens. A small percentage has some wrong ideas about e-learning; such as using e-learning is a waste of time; using e-learning is just a fad and will disappear; using e-learning is just propaganda; and some are worried about their role and wonder what they will do and whether they will stay at home (job security).

Regarding the use of e-courses in grade school in the Kingdom, the results of a survey conducted by the researcher on a sample of 40 male and female principals and teachers at the primary, middle and secondary levels showed that many female counselors, principals and teachers in the Saudi schools believe that the use of electronic curricula is a complex process that requires advanced equipment as laboratories, computers, infrastructure, and the Internet at school, specialization, and long-term training. They believe that e-courses require a lot of time to prepare, implement, and follow up the progress of the course and the students. Teachers do not have enough time for all of these due to their high teaching load which includes preparing and correcting assignments, tests, class supervision and counselling, conducting extracurricular activities, etc. Some believe that the use of e-courses is a kind of luxury in education.

On the other hand, many public schools in the Kingdom lack computer laboratories and computers in the classroom. If available, they are not connected to the Internet. Many teachers and students have computers at home. Since the Internet is not a place for chatting, reading news, and entertainment, but rather an excellent educational tool, this study aims to introduce schoolteachers and administrators to how e-courses can be used from home as a supplement to the courses that the students take, especially since students and children currently have a strong preference for using computers and games. They do this without or with little training. In addition, the use of e-courses from home does not require advanced computer laboratories and special equipment. Several teachers and students in several schools can share and collaborate in one e-course (Al-Jarf, 2003b).

Since the current tendency of the Ministry of Education in the Kingdom is to move towards integrating e-courses in classrooms of general education, the Ministry has already downloaded the Moodle Learning Management system on its server and has contracted with the "Smart Way" company to maintain the system and provide technical support and training. For supervisors, principals and teachers, a number of training courses were held for teachers, the most recent of which was the course held in the Qassim School District in the fall semester of the year 2008/2009. Therefore, this study aims to introduce the Ministry of Education officials, supervisors, and directors, school principals, and teachers to: (i) Introduce the requirements for activating e-courses on the Moodle system in terms of issuing a ministerial decision, training teachers, preparing the infrastructure, allocating a huge budget for e-learning, preparing educational content, and providing technical support to teachers; (ii)

the steps of implementing Moodle e-courses in the schools; (iii) the levels of implementation of the Moodle e-courses in the school; (iv) the stages, levels, objectives, content and forms of training; (v) the open MOODLE system for managing e-courses, its tools, and how to use each tool; and (vi) changing the attitudes of supervisors, managers, and teachers towards e-courses and methods of activating and using them, and removing their fear of using the Moodle system for e-learning.

It is necessary to activate e-courses on the Moodle system as a supplement to courses taught in the traditional classroom, in order for the teachers can optimally benefit from the opportunities available to them, the students to achieve the greatest possible benefit, and the money, time, and effort that the Ministry spends on operating and maintaining the Moodle system are not wasted.

2. Definition of terms

2.1 e-learning:

e-Learning is learning that takes place via the computer and any other sources on the computer that help in the teaching and learning process. In e-learning, the computer replaces the book and the teacher. In the electronic lesson, the computer displays the material on the screen based on the student's response or request. The computer asks the student for more information and provides him/her with the appropriate material based on his/her response. The material and the tests accompanying it may be simple - as in a traditional course - or it may be in the form of software on the computer. The material can be text, graphics, still or animated images, audio, visuals, or all of these together. E-learning may be in the form of a course that includes lectures conducted via videoconferencing on specific dates, as is the case in a traditional lecture. It could be a web page with additional material, including videotapes of previous lessons, discussions outside of class via email, and electronic tests whose results are automatically recorded in the students' records (Al-Jarf, 2001a) .

Types of e-learning include computer-based training (non-Internet-based), training based on the intranet, extranet, or Internet, computer-based instruction, and instruction based on media other than the traditional classroom such as the computer, television, audio and video tapes, and printed materials.

There are two types of e-learning: synchronous and asynchronous. In synchronous learning, students registered in the course access the course website at the same time, where they chat or discuss material at the same time. On the other hand, in asynchronous learning, students access the course website at any time they want, according to their needs and appropriate time.

2.2 The Electronic classroom

The electronic classroom is a group of activities that resemble traditional classroom activities carried out by a teacher and students separated by spatial barriers but work together at the same time regardless of where they are. The students and the teacher interact with each other through online dialogue and print messages that all individuals connected to the network can see.

2.3 The e-Course (online course)

The e-course refers to instructional activities and materials that are designed by the computer. There are several types of e-courses: (a) Courses that replace the traditional semester and those that support the traditional semester (used in conjunction with the traditional semester). (b) Accredited and non-accredited online courses (Al-Jarf, 1999).

The e-course consists of a group of components based on different formats. Any simple program consists of graphics, course-specific texts, a set of exercises and tests, records that store test scores, and bookmarks. The more complex program contains animated images, simulations, an audio collection, a visual collection, and links, in addition to the material. All of these are available on the Internet. The e-course consists of a set of tools that enable the student to communicate with the

course professor and fellow students, and to view and participate in information related to the course (Al-Jarf, 2008c; Al-Jarf, 1999; Al-Jarf, 2001a). The most important of which are the following:

- **Course Homepage**: It resembles the cover of the book and is the starting point for the rest of the course parts. It has a group of buttons that indicate the contents of the course and its tools (such as a list of book contents) and can be clicked to browse the parts of the course (just as we open any chapter in the book to view its sub-parts).

- **Course tools**: These are used for communication between the teacher and the students as individuals and as a group, or students with each other.

- **Academic Calendar**: This is a monthly calendar in the form of grids that shows the month, day, and date, and today's date appears in red or blue. It can be used to schedule tests, registration, meetings, assignment deadlines, etc.

- **Information about the teacher using the course**: Here the teacher lists office hours, email addresses, and a brief summary of each teacher, administrator, teaching assistant, lecturer, or visiting professor related to the course.

- **Announcements board** where the teacher posts written messages to students related to the course. It informs students of lecture dates, tests, vacations, the university calendar, and drop and add dates.

- **Discussion board:** Here the teacher or students write the topic and call it the "topic thread" and write a paragraph, as an example, and attach the students to. It shows the name of the topic writer, his/her email address, the topic attachments, and the date of writing. The students and the teacher can see what others have written, comment on it, and can see how many students have registered their reactions to each topic. Any file can be attached to the topic.

- **Chatroom**: Here a student or a group of students registered in the course can communicate with each other at a specific time. "Dialogue" can be used to view previous dialogues and send private messages to professors or colleagues, tracking websites related to discussion topics related to the course.

- **Course-specific information**: Here the teacher specifies the topics that students will study in the course, the pre-requisites for the course, the evaluation method that the teacher will use, and the instructional materials for the course.

- **Course content, i.e. course documents**: Here the teacher places the material that constitutes the content of the course and specifies the sequence of topics that the students will study. The course content consists of written material accompanied by multimedia items. The material can be in the form of readings, assignments, lectures, study instructions, a list of terms, notes, and more. It may consist of visual and audio material, pictures, computer simulations, and slide shows. It attaches documents, notes, photos, and media, and organizes the course topics in the form of files and folders with links that lead to the various course chapters.

- **List of electronic references (external links) and resources**: This consists of Internet websites related to the course with a note accompanying each website. Both the teacher and students can contribute to preparing the list. Site entries can be classified according to the date they were prepared, their topic, or according to the name of the person who prepared them.

- **Homework drop box** where students attach their assignments or view the tests and questionnaires for the course.

- **Test preparation tool** that the teacher can use to prepare weekly and quarterly tests and questionnaires. It consists of tools for preparing questions, determining the grades assigned to them, and a method for providing students with feedback on each question.

- **Evaluation tools** that the teacher can use to update, modify, and preview the tests and questionnaires he/she designed using the test preparation tool.

- **Grade book** that helps students view their results and grades and see how grades are distributed to each unit in the course and how the students' use of each electronic tool in the course.

- **Course statistics** that show the frequency of students' use of each component of the e-course. The teacher can view the pages that students frequently visit, the links they use, and the times when students use the site and when they do not use it.

- **e-mail center** to help the student send private messages, a file, or any attachments with the message to the teacher, a colleague, or a group of colleagues.

- **Shared files** where the student can download documents, pictures, worksheets, spreadsheets, and HTML pages from the Internet, or download and place them on the Internet. Documents prepared by the teacher or a student can be downloaded, read, reviewed, and recreated as well.

- **Memos page** that the student can use to jot down his/her notes or ideas, and the teacher can set some assignments, such as asking some questions or commenting on some articles and asking the student to comment on them. The student can show the teacher the headers.

- **Memos' page** which the student can use to jot down his/her notes or ideas, and the teacher can set some assignments, such as asking some questions or commenting on some articles and asking the student to comment on them. The student can show the teacher the topic of his/her notebook, where the teacher reads the topics and amends them, and suggests new topics.

- **Personal pages (Homepages) for the teacher and students:** The teacher and each student registered in the course can have a personal page on which he/she can place his/her picture and whatever information he/she wants about himself/herself. The teacher and other students can view each other's personal pages.

- **Blogs**: These are notes, opinions, and comments on specific events or topics that are written on the Internet, and are constantly updated, and the public and students read, interact with, and comment on them. Blogs consist of entries on topics arranged chronologically. Pictures, videos, recordings, drawings, fonts, etc. can be added.

- **Videoconferencing**, a technology that enables students in different places and the teacher to communicate live, via audio and video.

- **A Technical Support Manual** that provides answers to the user's inquiries and gives a detailed description of all components and functions of the e- course. It also contains an electronic instructional guide that shows the teacher how to use the online course step by step to train him/her in using the course.

- **A Control Panel** that contains all the editing tools necessary to specify the precise details that make up the course. Using the control panel, the teacher can do the following: (a) Post announcements, add texts, attach documents, and create folders. (b) Register the students who will use the website and distribute the students into groups according to the projects they will undertake. (c) Develop and administer tests, view tests, edit student grades in the grade record, and follow up on course statistics. (d) Get help and find answers to questions or solutions to difficulties the teacher faces in using the course. (e) Use of editing tools.

2.4 Learning management and learning management systems:

It is the ability to design teaching strategies that achieve the student's learning goals. The emphasis is on students' learning, not teacher preparation. Learning management systems are applications, software or technology based on the Internet that are used to plan, implement and evaluate a specific learning process. A learning management system usually provides the teacher with a way to create and deliver content, monitor student participation, and evaluate their performance. A learning management system can provide students with the ability to use interactive features such as discussion topics, video meetings, and discussion forums. Learning management systems include open source systems such as: ATutor, Claroline, Dokeos, Fle3, ILIAS, and KEWL. nextgen, LON-CAPA, Moodle, OLAT, Sakai Project. It also includes commercial learning management systems such as Saba Software; Apex Learning, Blackboard, ANGEL Learning, Desire2Learn, SAP Enterprise Learning

2.5 Educational content management systems

There are systems that offer tools to deliver and manage synchronous and asynchronous teacher-led training. They provide tools for authoring, reusing, and repurposing course content. The term learning management systems is often used to include both learning management systems and learning content management systems. At the present time, the use of the computer learning content information management system Clcims has become common.

2.6 The Moodle system for managing e-courses

Branzburg (2005) noted that Moodle is an open source course management system that educators can use to create e-courses. It was designed in 1999, and the size of the Moodle online community in June 2005 reached 3,500 registered sites in more than 100 countries. To use Moodle, you need to upload it to a server so that students and teachers can connect to it via the Internet. After the network specialist uploads Moodle to the school or educational district server, he/she must give every teacher who wants to use Moodle an account, and then create an e-course for him/her. Then it begins to specify the course settings, such as the course format, its title, when it starts, etc. Then the teacher begins building the course. Many of the mechanisms used in the classroom, such as assignments, academic calendar, and tests, can be created through courses based on simple resources. Moodle has many additional features that can help educators create e-courses that are fully available on the Internet and are effective, whether this course is prepared in advance or is prepared gradually and added to it during teaching. These features make Moodle usable in a variety of ways according to the needs and capabilities of the school or educational administration, starting from simple classroom management to courses offered entirely online or as a supporting course for the traditional course within the classroom that provides electronic content and uses that expand the scope of education that takes place within the classroom. Media libraries, external links, and other purchasable software can be integrated into Moodle e-courses. Moodle provides uses such as saving, exchanging, and restoring course components. The widespread use of Moodle in education at the general education levels (from primary to third secondary) may enable teachers to participate in educational resources and courses. They can engage in professional development and prepare for lessons from home, and students can use Moodle from home if they have an Internet connection.

The Moodle home page is an information portal for the class with templates such as calendar, entry, and news that can be configured and changed as desired. The middle part of the screen consists of a

list of created and existing courses arranged into groups (categories). Any course is a collection of an organized set of lessons, resources, and activities. The course author collects the material and its forms. The course can be organized on a time basis that specifies the date of joining the course and specific dates for assignments, and it can be organized in the form of a group of topics that can be covered in no particular order according to the student's pace. For the e-course facilitator (who may or may not be the course author) there are administrative functions such as registering students, assignments, grading, and tests.

The Moodle system includes an evaluation system that helps teachers monitor students' progress and their level of completion. The system allows teachers to use the course as they develop it and can reuse it and make improvements every year. Students usually start using one feature, such as a school calendar or assignment submission box, and then expand on it as teachers discover other features. Moodle is also designed to support the social constructivist aspects of the education process, i.e. effective contribution, and effective cooperation among students. In addition to traditional lessons, assessments, assignments and quizzes, other features have been integrated into Moodle such as the "Free Encyclopedia", forums and chat. An active development community is adding new features to Moodle, and Moodle users have begun to participate in open content courses.

It should be noted that what is meant by "free, open source software" is that there are no fees for downloading it from the Internet and using it, but technical support, maintenance, and training services require a budget and may be expensive.

3. Literature Review

In this part of the article, the researcher will review the instructional and training uses of Moodle in some American schools and educational districts as follows:

3.1 East Grand Rapids Public Schools District, Michigan:

East Grand Rapids Public Schools District in Michigan is an example of a school district that has slowly introduced Moodle to meet special needs. It includes 5 middle schools with 2,800 students. These schools use the Moodle system for various purposes without pressure from higher authorities. Six years ago, Jeff Crawford, Director of Networks and Security, began experimenting with Moodle on his own computer, and then his discoveries led him to put Moodle on a middle school server. One social studies teacher began using Moodle to teach her six classes using mobile carts with laptops on them. 30 students were able to access Moodle through one device for each student. Jeff Crawford then conducted a small-scale pilot study with 8 female teachers teaching all courses two classes per day. The response was positive. A science teacher designed a course for students to use from home, including WebQuests, tests, and other resources that supplement the course. The additional time required that created demand for Moodle classes increased the demand for mobile laptop carts. A new trend emerged as Moodle became the Swiss Army Knife of educational technology. Teachers began using one Moodle feature to solve their own individual problems. For example, a public speaking teacher needed a way to encourage students to submit drafts and outlines of their speeches, so Jeff Crawford showed her how to design assignments and a box for submitting assignments. Another teacher designed a course in genetics that she was teaching in the summer semester through distance learning. A teacher wanted to use an electronic version of the textbook for the whole class. The publisher stipulated that students who purchased the textbook be able to use the electronic version. Crawford created an electronic headquarters and registered students who owned the book. The art teacher devised a way to use the Moodle forum to design an art gallery for each of the 192 students. A tobacco prevention program used Moodle to place its advertisements and information. The yearbook group used Moodle to place yearbook images in Moodle for viewing and browsing. These examples are not very complex and skillful, but they meet certain technological needs. They chose Moodle because its cost is low and its interface is easy to use. Crawford recommends not pressuring teachers to use Moodle.

3.2 Valley Christian Schools:

Valley Christian Schools, which includes 1,500 students, have designed a comprehensive set of courses on Moodle to support integrated classes, provide complete e-learning, and provide teachers with professional development. Four and a half years ago, Fafken, Director of E-Learning, examined e-learning tools that could be used to support learning. His team used the Tegrity system, which enabled teachers to film lessons in the classroom and on interactive whiteboards, record them digitally, and then upload them to the Internet. Thus, students were able to review lesson presentations and class discussions several times. In the first year, schools discovered that the grades of students who used the Tegrity system increased (i.e. from D to C, from C to B, and from B to A). This showed them the importance of providing students with e-learning that supports traditional education in the classroom.

Three years ago, schools began using Moodle so that teachers could communicate with their students. Initially, teachers used Moodle to submit and grade tests online and as a box for submitting assignments. Teachers could correct assignments at home and students could get results and feedback immediately. 25% of teachers used Moodle on a regular basis. The teacher can register the students, the technical team can register them, the students can register themselves using the special registration number or register all the students in the class at once. Fafken reported that teachers need 20 hours of training to learn how to design courses using Moodle. He stated that e-courses that include live interaction between students and the teacher, equivalent to 20% of the time allocated for teaching, will result in an increase in the number of students who succeed in the course by 30-50%.

Schools have also moved to full e-learning. It offers accredited courses in Algebra 1 and 2, geometry and digital photography, and between 10-60 students enroll in each of these courses. School teachers contracted by the administration designed these courses and facilitated online enrollment during the summer. Teachers who own e-courses can collaborate in reviewing and editing each other's courses. Students and parents were given questionnaires at the end of each e-course. Survey results showed 80% satisfaction with the courses. 6 additional courses are currently being developed. For the first time, someone other than the course designer played the role of course facilitator in the summer of 2007. Teachers also use Moodle for professional development. The Technology Group designs courses on education and technology. One of the obstacles that prevent greater use of Moodle is teachers' lack of awareness of the necessity of innovation and their reluctance to innovate. Fafken noted that teachers are not as eager to try new things as those working in the technology field. He initially worked with the 15% of employees who were in touch with technology developments. When teachers are successful in using Moodle, they become advocates for the use of technology. He noted that teachers accept advice and guidance from their fellow teachers more than from technology experts.

3.3 Eagle Peak Charter School (EPCS), California

It has 3,500 students, both male and female, studying in kindergarten through 12th grade in 27 learning centers, home schools, and blended learning in five school districts. They have a wide variety of students who receive most of their education at home. It offers a variety of blended classrooms at the school, live online meetings, and customized online Moodle courses. Currently, they have courses in American history, physics, algebra, English, introduction to calculus, chemistry, biology, geometry, Spanish, and earth science. Students enrolled in the school attend classes two to five days a week. Teachers of these courses use Moodle to submit assignments and tests. It is provided according to a time plan. Sometimes the content of the material uploaded in the e-course is limited to help in organizing the course and communicating. About 200 students in grades 9-12 use Moodle in a program called Al Nahda High School Academy. Students attend core courses two days a week, then use Moodle to retrieve content and review assignments. Previously, about 150 students were able to attend one or more live courses that used the timeline format under the supervision of an educational specialist. Live synchronous courses have been discontinued recently due to a change in

administration and restructuring of the school. Each course had integrated content consisting of assignments, tests, videos, and external links. Students in live courses had to enter the course simultaneously twice a week and participate in video group discussions, and students met with the teacher face-to-face once every 20 days.

Although EPSC students are geographically dispersed, the e-learning system provided them with a course that included 15 participants. As for students who enroll in courses at their request, they can take them at any time without supervision from anyone. These courses are used to support independent study and home students, and independent study students may receive private tutoring from EPSC teachers.

Typically, teachers receive 15 hours of training over three days. EPSC has found that training is better for educators than for technicians because educators know how to focus on Moodle applications in the classroom. 80 teachers have received training, and 58 of them work as electronic supervisors for students who live in remote areas.

EPCS has a paper copy of their e-courses, and these guides are the basis on which the first generation of Moodle e-courses was based. Teachers were asked to develop courses "on the fly" on Moodle while they were teaching the course. Since the teachers did not teach every day, they had time to develop Moodle courses. In subsequent years, the courses were stripped down (maintaining the general structure), reused and improved. Each semester, they transfer (copy) courses from a master template for one of the subjects, create a new copy, and separate it by subject and for a specific period of time.

Jim Olson, director of the resource library at EPCS, found that the most widely used Moodle tools are the schedule and assignments because they enable teachers to adjust the workflow with students. Moodle also provides them with an assignment submission box. The free encyclopedia is used to give students a space to collect their work in the form of a digital file called Moodle space. General courses play the role of fixed reference pages to reach students enrolled in specific content courses. Free encyclopedia files and static course reference pages are examples of innovative uses of Moodle features that were originally designed for other purposes.

3.4 Using Moodle in the professional development of teachers in Tennessee:

It includes 28,435 students in 31 schools and 1,800 teachers. Moodle is used for professional development. The Clarksville-Montgomery County School System (CMCSS) requires all teachers to take an ICT course. Teachers must take a course on family educational rights, privacy law, and child services procedures. So, Helen Gooch, an instructional technology coordinator for the Montgomery and Clarksville School District in Tennessee, created a distance learning system on Moodle to support the professional development of teachers in the district. It offers teachers 3 courses, each component of which begins and ends on specific dates. When teachers complete the course within the specified period, the course is left open for a period of time, to allow teachers the opportunity to review what they have studied. Helen Gooch reads the discussion topics written by the teachers and uploads the test results into an Excel file. 120 teachers completed an advanced level of the information and communication technology course. This year, 200 new teachers in Clarksville will complete the electronic induction course for new teachers. Gooch was familiar with the features of e-learning because she had worked on Blackboard. I learned to use basic Moodle features in just three hours. It trained teachers to become facilitators of ICT courses. Gooch found that teachers who were introduced to the features of Moodle through the course they taught, and then once they became its facilitators, were well prepared to learn how to design a course.

One of the simple uses of Moodle is the "Forum". Many middle and high schools have an academic coach to help teachers establish a remedial reading program. A discussion board was established for teachers as a means of reporting problems facing individuals and the group at the beginning of the

program. Teachers can connect to the forum, read topics and publish them on it after only half an hour of training. The forum also creates room for open dialogue between teachers. They are allowed to work despite difficulties and celebrate successes. The forum has become popular among teachers and is opened when each new program is established as a way for teachers to exchange opinions and discuss issues and successes.

To increase the amount of benefit from the electronic professional development provided by CMCSS, two courses were created: "How to play the role of a facilitator in a Moodle course" and "How to compose a course on the Moodle system." These courses will be offered to district teacher counselors and academic coaches, who provide face-to-face professional development courses for teachers, to assist teachers in helping students succeed as they write and facilitate courses.

Gooch believes Moodle has been a huge success. But it issued a warning to school districts stating that the time a person spends on developing the e-course and facilitating it anywhere and at any time is wonderful, but it is easy to forget the number of hours that can be spent on it, because teaching e-courses does not take a specific amount of time like face-to-face training. .

3.5 Providing school services in Arizona through ASSET educational technology:

The Arizona Department of Education needed to stabilize the course for professional development in educational technology. Moodle is used for professional development, and Arizona School Services was funded through the Educational Technology Program to provide all public schools in Arizona with educational and training resources. The portal provides links to educational resources, digital video-on-demand subscription services, and e-learning services. The ASSET system consists of more than 36,000 user accounts and 3,000 logins per day. The leadership team and co-director, Mark Becker, evaluated available commercial e-learning systems and decided to use Moodle because it had the features and flexibility they needed.

ASSET develops their own courses for in-service training on the Moodle system. These courses are related to teaching methods and technology and are organized in the form of 15, 30, and 45 hours of training. Some schools use ASSET e-courses to track teacher salaries. The courses aspire to reach 180 hours of professional development, which teachers must study once every 5 years to re-obtain a certificate (license) to practice the profession. At present, there are 20-25 e-courses. Most courses are offered 4 times a year in a convenient manner, and another time at the user's pace. Facilitated courses begin on a specific date and end on a specific date. It is run by a sailor teacher who receives a fee in exchange for managing the course, reading and correcting assignments, and managing online discussions. Teachers enter the main portal, and their identity is verified to use Moodle and other services provided to subscribers. To date, 15,000 teachers have been trained electronically on the ASSET portal.

ASSET courses are developed by teachers for a fee. Course designers receive 2-3 hours of training on Moodle and are given a list of topics. They follow ASSET's general e-learning guidelines, which specify time length, number of quizzes, and features. ASSET encourages designers to use the educational formats supported by Moodle. After authors create the content, ASSET developers polish the output, creating the necessary graphics and fonts.

ASSET courses make extensive use of forums, assignments, and memo writing. Live teaching is based on HTML pages that often contain video produced by the ASSET team or linked to other partners. QuickTime & Windows Media Player is used to play animated images. Bandwidth sent by ASSET servers is no problem.

Teachers who used Moodle when they were students tend to go back to their schools, create their own system, and use it in their classes. ASSET intends to continue developing a greater number of in-service courses.

3.6 School Network for E-courses (CoSN).

It is a non-profit organization with a leadership role in educational technology. Its mission is to develop the capacity of the K-12 educational community to effectively use technology to improve learning through leadership development and policy development. Members of the organization represent school districts, local and state educational agencies, non-profit corporations, and individuals who foster... Our vision.

4. Steps in implementing Moodle e-courses

According to Al-Jarf (2007a), Al-Jarf (2006a), Al-Jarf (2005b), Al-Jarf (2001b), Al-Jarf (2002), and Al-Jarf (2008a), the implementation of Moodle e-courses requires taking the following steps:

4.1 Issuing a ministerial directive

The first step in activating Moodle e-courses and integrating them into courses in general education stages requires the issuance of a directive by the Saudi Minister of Education requiring every teacher to attend a 20-hour course in using Moodle e-courses. Implementation of the directive begins with secondary, middle, and elementary school teachers. Teachers who complete the training are awarded a certificate after ensuring that they have mastered the basics of using Moodle e-courses. Teachers who complete the advanced level of the course and serve as trainers for their peers are given an incentive bonus. Attendance at Moodle training courses can be counted in job performance reports. Implementing the directive requires support from the school districts and school principals and encouraging teachers to use the e-courses as a supplement to classroom teaching.

4.2 Allocating a huge budget for e-learning

E-learning has become a requirement of the era in which we live. Therefore, this budget should be sufficient to cover the expenses of training teachers and providing them with technical support and preparing the infrastructure in schools in terms of Internet connectivity, purchasing the necessary equipment, motivating teachers, hiring trainers and technicians, and so on.

4.3 Training teachers to use e-courses

One out of every ten teachers in each school is trained to use the Moodle e-course for one week, 4-5 hours per day (i.e. between 20-25 hours per week). These trained teachers are selected from those who are competent in using computers and the Internet or who are enthusiastic about integrating e-courses into education. So that trained teachers in each school train their colleagues in the school.

4.4 Training levels:

Teachers are trained to use e-courses at several levels:

- The beginner level, in which teachers are trained on the processes of creating the course, registering students, and using discussion forums, evaluation, announcements, and external links to the course.
- The advanced level, so that teachers are trained to design questions, exercises, and tests, and to integrate blogs, free encyclopedias, encyclopedic dictionaries, and more.

4.5 Determine the training objectives

- Know, understand, and use e-learning terms and basic commands.
- Understanding the components and mechanisms of the e-course and their use.
- The ability to prepare academic material and assignments and use them electronically.
- Ability to design collaborative, interactive, constructive, and problem-solving activities.
- The ability to train students and provide them with technical support.

- The ability to design electronic tests.
- The ability to monitor students' use of the e-course.
- The ability to motivate students and communicate with them electronically.

4.6 Determine the training content and include the following:

- Search for a model using his address on the Internet.
- Register for a course in the Moodle system includes: choosing a user name and password. Choose a name and symbol for the course. Complete course settings. Assign roles. Register students in the course.
- Enter the e-course using the appropriate link, username, and password.
- Adjust the course settings in terms of the types of users, their roles, and who the course teachers are.

***4.7 Knowledge of the Moodle tools and how to use them that* include the following:**

- The course homepage, academic calendar, bulletin board, discussion topics, assignments and tests, information about course user information, chatroom, blog, course-specific information, course-specific documents, electronic references (external links), and resources. Assignments box, test preparation mechanism, grade record, course statistical record, e-mail center, personal pages for the teacher and students, and the electronic guidance guide.

- *Preparing for online teaching includes the following*: inventorying students' computer skills, introducing them to the e-course and its tools gradually, training students to use the Moodle e-course, pre-preparing the content of the e-course, searching for information and websites related to the subject of the lesson, preparing a list of discussion topics and assignment questions, Preparing teaching tools and educational resources such as audio recordings, PowerPoint presentations, articles, and Puzzle maker; Lesson planner; Clip art gallery; Video library; Lesson plan library; Homework help tool. Make sure everything works before uploading it to the e-course. Informing students of the grades allocated for using the e-course (Al-Jarf, 2005a).

- *Components of the e-lesson* include: determining the goal of the lesson, what the student will learn, assignment, discussion, read and practice, a lesson on skills, evaluating the student's progress, printing the lesson, identifying difficult words and making them a link to explain the meaning, developing a list of terms and explaining them, and using pictures next to the text. And identifying difficult words in another color with the ability to click on them to see their meaning when you click on them, and the ability to hear the reading of the written text. There is a window for video and music for children, recording lessons, preparing pictures, animations and tables, preparing the course, testing it in advance before students use it, and managing presentation tools.

- *The instructional aspect of the e-course* includes knowledge of the theories on which e-learning is based, such as the constructivist theory, which says that students learn better if they participate in the educational process effectively through interaction with the course professor, other students, and the educational material, and knowledge of learning patterns. styles, cooperative learning and student-centered education by meeting students' needs, abilities, interests and learning styles. The student must be active and responsible for his learning process. With the need to answer students' questions, supervise them and follow up on their progress, explain the academic aspects in depth, and determine the rhythm of the lesson.

- *The social aspect of the e-course*: A social network should be created, and a supportive atmosphere created to motivate students to participate, and the course should have a friendly

and safe atmosphere. Post pictures of students and teachers and a short overview of them and encourage communication between students. Students may feel embarrassed to express themselves and express their opinions, so it is necessary to deal with students' communication and interaction anxiety, provide immediate responses, and know the reasons for students' delay in responding and some students' lack of response. Communicate, cooperate, reach a compromise, provide positive moral support, encourage each other, have a sense of commitment to the team, and manage communication tools. Encouraging students to interact and encouraging communication between the teacher and students and between the students themselves. Providing positive feedback to students for what they do. Encouraging students to ask questions and propose discussion topics, suggesting external links, still and moving images, and encouraging them to send e-mail messages to the teacher and to their classmates. Students should write about topics they know, experiences they have had, and ideas they would like to convey to their classmates (Al-Jarf, 2007a).

- *Evaluating the progress of the e-course*: This includes keeping a log of the progress of the e-course, following up on students' progress, and giving them feedback about their performance. Giving students a pre-test before starting to use the e-course and giving them another test at the end of the semester to measure the effect of using the e-course on student achievement. Keeping students informed of their grades during the semester and how much progress they have made.

- *Providing technical support to students*: This includes solving problems facing students in downloading educational material, such as slow browsing and poor audio material, problems downloading internet pages, video clips, audio recordings, and PowerPoint presentations, searching for sites related to study topics, providing technical support to students, and maintaining content. E-course (links, audio, pictures, video, etc.).

- *Time management*: Setting a time each week, such as Thursday or Friday morning or evening, to add announcements, discussion topics, etc. It is possible to set aside an hour a day at a specific time to review students' responses, interventions, interactions, and performance on assignments and tests, allocate time to write interventions on discussion topics, and distribute students into groups for collaborative activities. If the teacher is busy and does not have time to follow up on what is happening in the e-course, he can write general comments and words of encouragement to the students as a group, taking into account that comments on students' performance are positive (Al-Jarf, 2002).

- *The roles of the teacher in the e-course:* facilitator, designer, director of the e-course, technical support provider, and has a social, educational, and evaluative role.

4.8 Forms of training:

- Face-to-face training.
- Electronic training, using the Moodle system itself in the training process.
- Preparing a guide for using Moodle e-courses in both paper and electronic versions.
- Continue training on the use of Moodle e-courses through discussion forums so that teachers ask their questions, the problems they face, and present their experiences in using Moodle e-courses.

4.9 The electronic infrastructure necessary to activate e-courses:

The first stage: Using Moodle e-courses from home

Due to the lack of computers and Internet connection in many classrooms in government schools in the Kingdom, teachers and students can begin using e-courses from home. This requires the availability of a personal computer and an Internet subscription at home for the teacher and his

students, most or a large percentage of them. It also requires basic technical skills for the teacher, such as browsing the Internet, chatting, how to search for educational sites on the Internet, knowledge of the main tools in the e-course, how to design e-learning activities different from traditional education based on the book and the teacher's explanation, how to design and create discussion topics, how to Manages discussion among students, and uses e-mail to communicate with students (Al-Jarf, 1999; Al-Jarf, 2002; Al-Jarf, 2007b).

The second stage: Connecting the Internet to all government schools in all educational regions within a period of time determined by the Ministry of Education (two years, for example) so that teachers and students can bring their own laptops to school to access e-courses that support learning in the classroom (Al-Jarf, 2002).

The third stage: Placing a plasma screen in every classroom in every school connected to the Internet so that the teacher can display some websites and electronic material to the students inside the classroom on it.

The fourth stage: Establishing a computer lab for every 6 classrooms in every school.
The Ministry of Education sets a period of 3-5 years to provide each school with 1-3 computer labs connected to the Internet. In each lab there will be at least 30 computers so that every class in the school can use the laboratory is one hour per day for each class, i.e. one computer laboratory for every 6 classes. Each student has the opportunity to use the e-courses, assignments, and tests on their own (Al-Jarf, 2002).

4.10 Preparing electronic instructional content for various courses.
In the first stage, teachers search for Arabic websites, drawings, videos, and recordings related to the topics of the course taught in the classroom.

In the second stage, a center for designing electronic curricula is established to support curricula for different stages of various types in each city or educational region, staffed by a team of specialists who prepare multimedia electronic curricula in different specializations and for different grades. Carliner (1998) indicated that the team preparing e-learning programs consists of a group of specialists: a project manager, a curriculum designer, a writer who writes texts for the educational program, a designer of graphics and images, a programmer, an engineer who tests the suitability of the program for use, and an editor who verifies the validity of the program. The extent of the program's stability and consistency with the outlines, a specialist who tests the links and makes sure that they work, and that the program as a whole works well and does not cause malfunctions while using it with other programs, a team to produce the visual aspect, including images and video graphics, and another for audio production and specialists. In the scientific subject, and funders of the project.

4.11 Levels of implementing of e-courses
To overcome feelings of intimidation, teachers start by using a few e-course tools such as announcements, calendar, external links, and discussion forums, and then gradually add new tools after practice using them. For example, they could place one ad, one discussion topic, one assignment, and a number of links once a week.

In the beginning, all teachers who teach the same course for the same academic level classes, along with their students, can participate in one e-course, where students from each class can be placed in a group. Teachers can share tasks in the e-course, and each of them is responsible for some tasks. As teachers become more skilled and experienced in using the Moodle e-course, any teachers who want can have their own e-course on the Moodle system.

Since preparing a complete e-course that fully covers all course topics is difficult, especially when teachers are beginners, the e-course can be prepared week after week while teaching the traditional course in the classroom and according to the course topics taught by the teacher. The course content can be reused in the following semesters and years with changes, modifications and improvements made to it.

Teachers can use one Moodle feature according to their individual needs. The teacher can design assignments and students can submit drafts of their writing topics and stories through the assignment submission box. It is possible to use an electronic copy of the textbook for each class, or design an art file for each student, or a student encyclopedia, or a student encyclopedic dictionary of scientific terms that students encounter in their textbooks, or place advertisements and information for extracurricular activities.

4.12 Providing technical support and permanent maintenance of the Moodle system, network, and devices while teachers use e-courses on Moodle.

During training or while using technology in education, teachers may encounter some problems, such as printing problems, the Internet connection suddenly stopping, the inability to open e-mail, slow browsing, and problems downloading files from the Internet, or downloading files, videos, and pictures from the Internet and uploading them to the site, and searching. About websites related to the topics of the course being taught, methods for designing the test, checking the course links, and the video and audio clips in it and ensuring that they work. McDaniel and Umekubo (1997) stated that this requires the presence of a technician responsible for managing the network and another responsible for maintaining the network permanently to fix faults, assist teachers in designing websites and Internet pages, supervise training and planning, and answer teachers' inquiries, in addition to a coordinator who coordinates Between networks that include a group of schools.

5. Conclusion And Recommendations

Implementing Moodle e-courses requires taking several steps that require time, effort, and huge funding. These include the following: (1) Amending the education policy at the school level so that the courses become a supportive tool in the educational process at all stages. (2) Forming a committee at the educational district level to undertake the development process, consisting of a work team that includes a group of specialists in several fields such as curriculum development and educational technology. (3) Studying the reality of using technology in the school, i.e. inventory the educational devices and programs available in it. (4) Supporting and encouraging the school administration to integrate e-courses into education and teachers to use them. (5) Developing a comprehensive long-term vision or plan to integrate e-courses into education at the level of different courses, grades, and stages. (6) Determining a period of time to implement the integration plan in teaching different courses and grades. The merging process takes place in stages, each consisting of small, gradual steps. (7) Allocating a huge budget to integrate e-courses into general education courses, and to cover the costs of teacher training expenses, hiring experts and trainers, maintaining the Moodle system for managing e-courses, and purchasing hardware and software. (8) Establishing a technological infrastructure that includes delivering Internet service to schools, providing multimedia computer laboratories in schools, providing schools with computers and accompanying educational devices and programs, and replacing old devices (if they exist) with other modern, advanced devices (Al-Jarf, 2001b).

In order for the e-course to be successful, the results of many research studies revealed several factors as preparing students to manage all the information they will deal with in the course, ensuring that students are able to communicate with the teacher, each other, and the content of the course while providing feedback, and communication among the students and the students and their teacher(s), and that the objectives, material, and list of course topics are clear, strong teacher support, the possibility of viewing the work of former students, the course must be user-friendly, the sources must

be up-to-date, the students and the teacher must have technical and organizational skills, and periodic discussions on the Internet, Determining when to upload work and projects, and the ability to organize oneself and work effectively (Al-Jarf, 2006c; Al-Jarf, 2005c).

In order to achieve the greatest possible benefit from the Moodle system, teachers must be informed of the Saudi Ministry of Education's participation in the Moodle system and send the electronic address of the Moodle system to schools and teachers. It is necessary to facilitate the registration process for teachers and create a teacher-specific course without the need to obtain permission and wait. It is necessary to enable students to register themselves, taking into account the operation of editing tools, making the home page clear and organized, reviewing the Arabic equivalents of the English terms used in the Moodle system, using understandable and accurate Arabic terms, and preparing a paper and electronic introductory booklet for teachers that includes a list of Moodle terms and a definition for each. Including, and pictures of Moodle screens, identifying their parts, with a brief explanation of each one. The Ministry of Education can give awards to teachers as an incentive for using Moodle, and for teacher trainers for training their colleagues.

It should be noted that e-courses differ from traditional courses. In the Kingdom, students in the same grade level in all schools and all school districts use the same textbook and the same course components, while e-courses are based on differences, not unification. That is, teachers of e-courses (even if they are for the same subject and for the same grade level) should design and use an e-course that supports the course they are teaching in a form and content that differs from other teachers. That is, each teacher can tailor his e-course to suit his/her students, their abilities, interests, and weaknesses.

In conclusion, it is necessary to conduct research in the field of e-learning on an ongoing basis to inform teachers and officials about the impact of using e-courses on student achievement, the extent to which students benefit from the integration process, and the problems and difficulties related to the process of training teachers and their use of the Moodle system for managing e-courses.

References

[1] Al-Jarf, R. (2008a). EFL Faculty Online: Support and Development Issues. 13th TCC Online Conference. April 15-18. Google Scholar

[2] Al-Jarf, R. (2008a). eLearning and distance education at Arab universities. 5th ISCAL Conference Titled Horizons of Scientific Research and Technological Development. King Abdul-Aziz City for Science and Technology. Fez, Morocco. October 26-30. Google Scholar

[3] Al-Jarf, R. (2008b). How to Use Moodle Learning Management System. First e-Learning Forum. Ministry of Education, Riyadh, Saudi Arabia. 24-25 May. https://www.researchgate.net/publication/354076356. Google Scholar

[4] Al-Jarf, R. (2007a). *Cultural Issues in Online Collaborative Instruction in EFL Classrooms*. In Meena Singhal and John Liontas (Eds.). Second and Foreign Language Teaching and Research. pp. 77-83. ERIC ED638470. Google Scholar

[5] Al-Jarf, R. (2007b). *eIntegration challenges for rectors & deans in higher education institutions in Saudi Arabia.* IASTED Conference Proceedings. Acta Press. Google Scholar

[6] Al-Jarf, R. (2007c). online esl learning: effects on college levels & course types. College of Languages and Translation. https://www.researchgate.net/publication/267546695 . Google Scholar

[7] Al-Jarf, R. (2006a). Integrating technology in EFL college instruction in Saudi Arabia. Education and Psychology Journal (Risālat al-Tarbiyah wa-'Ilm al-Nafs), 26, 215-242. Doi: 10.33948/0059-000-026-004. Google Scholar

[8] Al-Jarf, R. (2006b). The effects of elearning on teaching English as a foreign language to Saudi college students. *Mission of Education and Psychology Journal, 26,* 215-242. Saudi Association for Education and Psychology. King Saudi University. Google Scholar

[9] Al-Jarf, R. (2006c). *Are WebCT, Moodle and Nicenet equally effective in EFL instruction*? 4th Asia CALL Conference. Geongju, Korea, November 10-12, 2006. Google Scholar

[10] Al-Jarf, R. (2005a). *Computer Literacy among Saudi University Female Students: A Case Study*. College of Language and Translation Seminars. King Saud University. Riyadh, Saudi Arabia. Google Scholar

[11] Al-Jarf, R. (2005b). *Use of CALL in No-Tech EFL Classrooms*. (ICLES 3). In Information Technology and English Language Studies. Santa Dharma University, Yogyakarta, Indonesia. pp. 1-11. ERIC ED612448. Google Scholar

[12] Al-Jarf, R. (2005c). *Using three online course management systems in EFL instruction*. Annual Meeting of the Asia Association of Computer Assisted Language Learning (AsiaCALL) (4th, Geongju, South Korea, Nov 10-12, 2005). ERIC ED497937. Google Scholar

[13] Al-Jarf, R. (2004). *Use of online instruction by faculty members at Saudi universities: Current status and future perspectives.* Proceedings of the Symposium on Faculty Development at Saudi Higher Education Institutions. College of Education, KSU, Riyadh, Saudi Arabia. Google Scholar

[14] Al-Jarf, R. (2003a). *Does technology make a difference in learning*? 9th TESOL Arabia Conference titled "English Language Teaching in the IT Age", Dubai, UAE. March 12-14. https://www.researchgate.net/profile/R.-Al-Jarf/publication/355209806. Google Scholar

[15] Al-Jarf, R. (2003b). *e-Learning and the future of university education in the kingdom.* The Eleventh Annual Meeting of the Society of Psychological and Educational Sciences: Learning and the Future of Learning in the Kingdom of Saudi Arabia, 29–30 April. Google Scholar

[16] Al-Jarf, R. (2002). *A training program for developing college female faculty computer skills and utilization in language teaching, translation and research based on their instructional and occupational needs.* Proceedings of the University Faculty Development Symposium. Center for Research. Center for University Students. King Saud University. Pp. 85-125. Google Scholar

[17] Al-Jarf, R. (2001a). *Online courses*. Proceedings of the 13th Annual Conference of the Egyptian Association for Curriculum and Instruction, 195-210. Google Scholar

[18] Al-Jarf, R. (2001b). *Requirements of the transition from traditional learning to e-learning.* Proceedings of the 13th Annual Conference of the Egyptian Association for Curriculum and Instruction, 157-170. Google Scholar

[19] Al-Jarf, R. (1999). *University instructors and technology*, University Faculty Development Symposium. Center for Research. Center for University Women Students. KSU, Riyadh, Saudi Arabia. November 2-4. Google Scholar

[20] Arizona School Services through Educational Technology. http://www.asset.asu.edu

[21] Branzburg, J. (2005). How to Use the Moodle Course Management System. *Technology & Learning, 26, 1,* 40.

[22] Carliner, P. (1998). *An overview of online learning*. VNU Business Media.

[23] Clarksville-Montgomery County School System (CMCSS) in Tennessee: http://www.cmcss.net

[24] McDaniel, B. & Umekubo, J. (1997). A solid foundation for technology implementation. *Thrust for Educational Leadership; 26,* 18-21.

[25] Valley Christian Schools, California. http://www.vcschools.org

[26] CoSN K12 Open Technologies Implementation Study. January 2008

[27] Eagles Peak Charter School California. http://www.eaglespeak.org.

[28] East Grand Rapids Public Schools Michigan. http://www.egrps.org