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E-LEARNING APPROACH IN TEACHER TRAINING

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INTRODUCTION

There has been an increasing interest in e-learning in teacher training at universities during the last ten years. With the developing technology, educational methods have differed as well as many other processes. Firstly, a definition on e-learning as a new approach should be given. E-learning could shortly be defined as a web-based educational system on platform with Internet, Intranet or computer access. The concept of e-learning has two main subtitles as synchronized (where a group of students and an instructor actualize an online conference meeting in a computer environment) an asynchronized (where individuals actualize self-training in computer environments). Students have access to the course contents whenever they want and communicate with their peers or teachers via communication tools such as e-mail and forums. In order the distance learning system to succeed in e-learning, the program should be planned as both synchronized and asynchronized.

There have been many studies on e-learning. Aljanazrah & Bader (2006), in their study on e-learning approach in laboratories, developed a teaching model for this application. In this model, the lessons planned were simulations and softwares for students on polymers and metals. Nine experiments were designed on the topic. Students were interviewed and administered laboratory attitude scales at the end of the experiments. The study concluded that the experiments in the new model were appropriate to teacher training programs and could successfully be administered to large groups.

Fisher, Thompson & Silverberg (2004-2005), developed a model for computer-assisted online courses in their study on the effects of cooperative method on group work. This model forms a sample case. The findings concluded that cooperative learning was highly effective in student works.

Davies & Graff (2005), in their study on the performance of e-learning applications, focused on student interactions within online programs. The interactions of 122 university students were compared to their end of year grades. A significant increase in the performances was observed, however, some factors were determined to cause some gaps in online programs.

Usal & Albayrak (2005) examined the Turkish model within the framework of the general structures of distance learning models, their communication environments, technologies as well as the effective parameters in education. They concluded that with the growing utilization of Internet communication technology in Turkey, e-transformation could be actualized.

Ashton, Beevers & Bull (2004) evaluated the pilot e-learning applications to be administered in private schools in Scotland. The application, which depends on the higher education system developed in UK, involves the formal evaluation of basic concepts of e-learning and its effects on students. The application was administered

on various groups and successful results were attained in such fields as computer-assisted math education or computer programming courses.

Frank, Reich & Humphreys (2003), in their study on creating an e-learning environment where students' needs are addressed, evaluated the e-mail using frequencies of students aged 6, 11 and 12 within the distance learning process. Moreover, students' basic computer skills, student-teacher relationship and the role of the teacher were also examined.

Weitl, Sub, Kammerl & Freitag (2002) designed an educational model that involved various teaching methods within online learning structure. This model focused on two problems; one being the limitedness of knowledge transferred during learning in Internet environment and the other being the tiring aspect of learning in a short time. This model also involved the online computer-assisted learning modules that are administered in 12 universities in Germany.

Granow & Bischoff (2002) started their research in the field of Computer Sciences with 6 course applications in seven universities in Germany, after which they extended the study to 12 universities in the field of economics engineering. The research involved course materials, computer-assisted cooperative learning projects, learning environment management and online working planning in a virtual environment created in universities.

Farnsworth (2001) examined the distance learning method supported with interactive software applications known as active learning in higher math education. The main aim of the program was to encourage students in better comprehension of parameters and math concepts by relating them with daily life experiences. Math curriculum softwares were designed at all levels in order to provide better learning. The number of studies on the issue has been increasing rapidly and great improvements have been recorded in terms of its usability and applicability.

WHY E-LEARNING?

Internet has been widely used for less then ten years; however, it has changed the contents of many concepts in our lives as a modern communication tool. Many common concepts such as government, trade, democracy and learning have gained new meanings by taking the prefix "e". E-learning or web-based education is one of the important concepts and opportunities provided by the Internet. The concept of distance learning actually emerged much before than the Internet; actually, it is said to be as old as education.

The distance learning models administered via letters, press, television and CDs have ended up with practical and successful results. As Internet is global, unlimited and open to public, the teaching applications planned for the Internet environment has a potential of moderating the nature of distance learning. It seems that it will be the only distance learning tool of the near future. E-learning, as a new version of distance learning, is applied via the Internet technologies and involves the educational activities, which do not require the presence of the teacher and learner at the same time and place.

FROM THE CLASSROOM EDUCATION TO E-LEARNING

When compared to the classroom education, e-learning offers many advantages to students. Firstly, during the e-learning process, students have the chance to decide how log they want to be educated. All the decisions on issues such as learning speed and the intensity of the topic depends on the student. Student has the right to get in contact in case of any problems.

It does not require any expenses such as transportation or accommodation. Since e-learning process is a student-centered educational system, the learning materials could be organized according to the professional responsibilities and qualifications of the student. An effective e-learning system enables a student to determine and process his/her learning style, content, aim, current knowledge and individual skills. Therefore, person-specific education could be provided through creating individual learning styles. E-learning enables the individual to plan and direct his/her own learning process, so each student takes the responsibility of his/her own learning.

In additional, the forums, created within the e-learning system, provide students with a discussion environment where problems are solved cooperatively in chat rooms. With the help of cooperation, which is the best way of effective learning, e-learning enables the user not the one-way communication as in the classroom education but the duplex interaction.

SOME KINDS OF E-LEARNING APPLICATIONS

E-examination: In this application, students are administered many proof exams in the internet environment before the formal exams, which enables them to determine their approximate levels. These proof exams, which enable the students to determine their approximate readiness levels, are the most facilitated e-learning services.

E-Drills: With the Internet-based drill softwares, it is aimed to create an effective and productive studying atmosphere for students. As students access these activities on the Internet, they could study on the units through interactive multimedia softwares and reinforce their knowledge by examining numerous examples. Internet-based drill softwares with animations and intensive student-computer interaction could be in service within this program. Students enrolled in the distance learning system, could study on the softwares with or without sound effects.

Therefore, students of the system could study more effectively and productively in the Internet environment.

E-Book and E-Television: In order to enable the students to access the books and TV programs on the Internet, the contents of the course books and TV programs could be presented on the Internet as e-books and e-television. Therefore, a student of the system could easily access the course books, TV programs, study through the multimedia research softwares and assess him/herself through the proof tests in an Internet-café or at his/her own PC at the office.

E-Counseling: The one-to-one academic counseling provided to the students could also be provided in a similar format on the Internet. Parallel to the research softwares, students are allowed to ask questions to their academic counselors related to their course contents.

E-Sound Book: The E-sound book application, which enables especially the visually retarded students to listen to the course book contents, could be provided on the Internet.

Therefore, visually retarded students and the students with screen reading difficulties could access their course books form their offices or from an Internet-café. They could listen to the contents of the course book by downloading the sound files on their computers (Mutlu, Kip & Kayabaş) Eight Criteria to be used in the Evaluation of the E-learning Projects.

E-Learning Pie Graph is a simple tool that is used for the evaluation of the projects. These graphs involve the following questions:

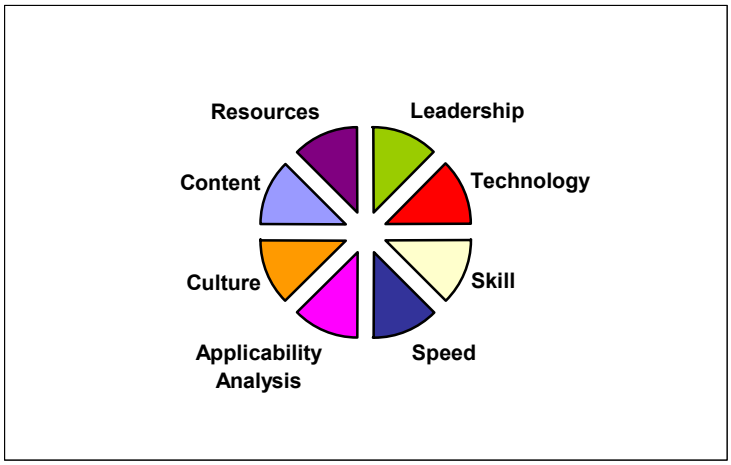

Figure: 1
E-Learning Pie Graph

Applicability Analysis
How coherent are the aims and targets of the organization with your e-learning? How strong is your proof for achieving the aims and targets of the organization with e-learning? How well have you done the applicability analysis?

Culture
What is the appropriate culture for e-learning? Does you organization have this culture? If not, are you trying to attain something that is necessary for you?

Content Quality
Is the knowledge provided within e-learning appropriate to the student's needs? Is the amount of knowledge sufficient? Is this educationally meaningful?

Resources
Are the required financial resources ready for e-learning? If not, could more financial resources be found?

Speed
Could your e-learning materials address the changes rapidly? Would it be able to transfer the new knowledge at the required speed? Have you been trying to address your need to increase you capacity to move faster?

Skill
Does your group have the required levels of skills for applying e-learning? If not, have you been trying to train them within this project?

Technological Change
Could your organization address the improvements in the e-learning technology? Or, are you limited with the current information technology structure, security or compatibility problems? Have you tried to overcome these problems?

Leadership
Are the leaders supportive, logical and ready? What could you do in order to make leaders provide significance and expertise? In order to evaluate the e-learning project;

- **The Pie Graph is re-evaluated in order to reflect the current problems.**
- **Each criterion is given values between 1 and 10.**
- **It is explained what the Pie Graph tells about e-learning. Does the graph tell you how e-learning could be improved and how could more pie pieces be attained? Why did some parts get higher scores than the others? Could you learn things from pieces with high scores, which allow you to do applications for parts with low scores?**
- **The relative importance given to each item in the organization and the questions prepared for the score sequence are evaluated (Yavuzcan, P.)**

THE ADVANTAGES OF E-LEARNING APPLICATIONS

The application scope of e-learning is rather wide. The important point in e-learning applications is its being able to educate the learner through technological tools whereas in traditional classroom teaching, the learners have to be together with the educator. Many e-learning applications involve mutual interaction; for example, in virtual classroom applications, students (from different places) could get education together in a virtual classroom.

The trainer could ask questions to the classroom and the participants could respond to these questions through their screen. It enables the reviewing and renewing of educational materials in terms of accuracy and appropriateness. Technological tools not only make education more attractive through rich audio-visual presentations but also increase the level of learning. With the rapid attainment of knowledge and experience, it becomes easy for the working people to keep up with the changing business world. E-learning applications would contribute to important developments in human resources, content and technology in Turkey. E-learning provides the learner the chance to decide when to learn as well as how fast and how much to learn; and enables them to contact the teachers via e-mail or forums. Since there is no need to go to a campus, they have no expenses for accommodation or transportation.

THE CHARACTERISTICS OF AN E-LEARNER

The students, who would participate in e-learning applications, need to have some characteristics or abilities:

- **The first condition of learning is to have the will for it. E-learners direct their own learning. This is an advantage but sometimes problems may occur. An e-learner should aim to keep his/her self-motivation for learning at the highest level.**
- **E-learners have to spend certain times of the day for education. They should not make themselves sit in front of the computer for long hours. It is a fact that the planned educational sessions increase achievement.**
- **When deciding on the time for education, e-learners should choose less busy hours of the day when education could be less interrupted. They should keep their attention away from the outer factors as much as they can.**
- **After completing each course, e-learners should think about the knowledge they attained as well as how to use it. This would increase the level of motivation.**
- **E-learners should determine daily targets for themselves.**
- **E-learners should not hesitate to get in contact with the teachers or peers via e-mail or forums in case they need to reinforce or repeat a topic. (http://www.meslekegitimleri.com)**

LEARNER-CONTENT INTERACTION IN E-LEARNING

Within the designing process of teaching, it is an important step to organize the interaction and communication opportunities. Interaction is an important factor especially in Open University where students, teachers and teaching resources are away from each other in terms of time and place. Learning-based interaction mainly has three types. These are learner-content, learner-teacher and learner-learner interactions (Moore, 1996).

Another accepted interaction type is the learner-interface interaction. Learner-interface interaction emphasizes the learners' interaction with technology whereas the learner-content interaction focuses on a pedagogical interaction. At Open University system, since learner-teacher and learner-learner interaction is limited within distance learning, learner-content interaction has a critical importance in reaching the learning targets.

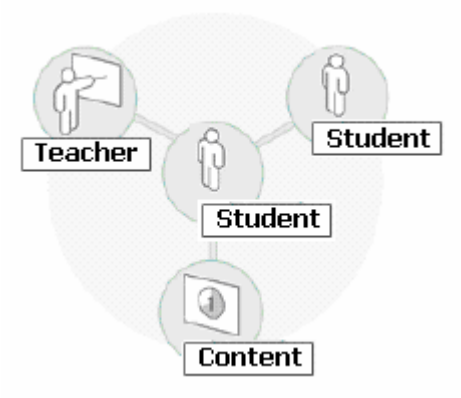

Figure: 2
Types of Interaction in Learning Environments

With the content provided to the Open University students and the students' own ways of interaction not only ease the self-learning but also affect the learning process positively. In this system, where the learner-content interaction is provided by books as main materials, e-learning services such as TV programs, e-exams, e-drills, e-books, e-television and e-counseling would reinforce the interaction and increase student achievement.

In a study where the Two-year Police Occupational Education Program students' e-learning records and student information were analyzed between October 2003 and September 2004, a comparison was made between the students who belong and do not belong to the e-learning program.

According to the end-of-year averages, students of the e-learning program had higher achievement levels than the others (Mutlu, Erorta, Kara & Aydin, 2005).

In 2003-2004 academic years, a study was conducted in order to determine how the achievement levels of e-learning program students of Open University differed form the ones who were not involved in the e-learning program. The midterm exam results showed that the scores of the students of e-learning program were higher than that of the ones who were not in the program (Mutlu, Erorta & Yılmaz, 2004).

As e-learning services varied, learner-content interaction was observed to have improved in the Open University, which contributed to the increase in the student achievement levels.

SUGGESTIONS FOR E-LEARNING APPLICATIONS

When e-learning programs are administered as a support or alternative for the traditional learning methods, the learning process becomes more consistent as well as the learnt knowledge. Although the infrastructure expenses for e-learning are high, the long-term education and service quality are more satisfactory.

The equipment for this program should be well designed. The design team should first determine the target audience accurately and consider many aspects such as the type of the education and media.

The correct choice in the equipment and communication type to be utilized would contribute to the more effective and productive use of time as well as reducing the expenses for communication and investment. On the other hand, the approach of the government towards e-learning, the awareness created in the society and socio-economical statuses are among the factors that speed up the e-learning process. Such contributions to education could also reflect on the development of technological infrastructure of the country.

This creates competition among the countries in the globalizing world. Additionally, the rapid development in technology assists in the development of educational system as well as leading to more educational models to emerge.

Establishment of virtual labs provides the chance to follow the developments in education in the world, especially for the institutions, which are financially unavailable to purchase lab equipment.

Therefore, a competitive environment is created in education, which leads to sustainable development. With e-learning environments, students could continue the teacher-learner relationship from different places at different times.

E-learning terminates the limitation of time and place while providing learning environments with lower expenses. In learning process, the relationship between teacher, learner and peers has great importance. Individual learning is also important, however, the efficiency of learning together could not be avoided.

Achievement depends on support and individuals need assistance in learning topics. Therefore, teachers of e-learning programs need to have a serious in-service training; because, many e-learning programs require mutual interaction via technological tools. The word "electronic" as a prefix for e-learning, does not only mean that learning occurs with technological tools but also requires the awareness in developing technologies.

So, teachers of e-learning programs need to be trained in information technologies and Internet in order to gather with their students in virtual classrooms. Additionally, they have to have the ability to administer all applications successfully and to follow the developments in pioneer countries in e-learning and distance learning.

It is also very important for teachers to be able to provide academic counseling together with their competence and expertise in information services.

It should be well-understood that e-learning applications could succeed, be preferred and developed only with the participations of the teachers with above-mentioned characteristics.

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