

A Distance Learning Application Intended For Master Education

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Abstract: *Within the fast development of knowledge and informatics, there are many new applications and renovations in education field. The Distance Learning is one example of these renovations and applications. In this work, the development duration and application results of a distance learning application intended for master education were explained. This application consists of 4 courses for master education on Computer Education. These are Fuzzy Logic, Artificial Neural Networks, Expert Systems and Soft Computing Methods. The number of students and the successful rate of this application are shown as graphically in the last section.*

Key Words : *Distance Learning, internet, Master Education, Computer Sciences.*

INTRODUCTION

Each human being joins to education process during his/her life. Every person's characteristics changes with education and this modification also changes the structure of the society that person belongs to. So the economic, social and political forms of the country take shape. In other words, the education level of the country determines the development level of that country. Therefore, the education becomes a vital factor for the societies and countries [2].

Today, the subject that has been arguing recently is not how much an education should be given but how it should be. Also new education methods are being investigated. It has been studied to figure out the productivity and affectivity of the education with pilot applications [1, 6].

In recent years, there is a new education strategy we meet nearly in every educational institution, called Distance Learning [8, 5]. Distance Learning is an education method that uses the technological opportunities in optimum level. Its' aim is to offer education to the person who couldn't take education in many reasons such as illness, distance etc. It is mostly preferred by institutions because of flexibility that allows educational equipments such as computer, television, internet etc. Also the education will be more effective and permanent by using these equipments. Besides that, the cost problem, insufficient number of instructor and increasing demand of education will begin to disappear by using a Distance Learning.

The disadvantages of this kind of education are limiting interaction between instructor and students, less effective dialogue and the problems occurring in technological infrastructure [8, 5].

In this study, we described an experiment of Distance Learning which applied for master education in Selcuk University, Technical Education Faculty, Electronics and Computer Education Department.

THE MATERIALS AND ENVIRONMENTS USING IN DISTANCE LEARNING

There are many materials and environments using in Distance Learning. These are;

- Printed Documents
- Radio and Tape Cassette
- Television and Video Cassette
- Telephone and Fax
- Teleconference and Videoconference
- Computer
- Internet and E-mail

Educational materials such as letter, tape cassette and video cassette are the tools used in the first years of distance learning. The educational tools and environments such as computer, internet, teleconference and videoconference are preferred more in recent years [3, 4]. Within the fast development in computer technologies, especially the advantage of using the computer in nearly every house has effective role in successful rate of education.

Internet based Distance Learning is the most preferred technique because of removing many problems of Distance Learning [9]. First of all the distance problems disappear. It can be reached to Distance Learning system in a comfortable way from anywhere in the world by courtesy of internet and computer. Also many educational capabilities such as animations, voices and video recordings can be taken part in educational process by using java, php, asp etc. softwares. So the education will be permanent and comprehensible [1, 6].

SELCUK UNIVERSITY DISTANCE LEARNING PROGRAMME

Many educational institutions choose the way of planning new programmes to take advantages of technological opportunities. By applying these new programmes, they aimed to offer education by means of outside of classical education comprehension [7].

Our university also applied an e-learning programme to reach the educational circumstances mentioned above. This programme is called Selcuk University Distance Learning Programme. It started in 2000-2001 Fall term. In this programme, Turkish Language, The Principles of Atatürk and History of Revolution and Foreign Language courses are offered in three ways. These are face-to-face, internet based and television based education [1, 6]. The web site of this programme can be reached by clicking the link: <http://farabi.selcuk.edu.tr>.

Face-to-Face Education: In face-to-face education, the instructor is going on offering courses under the framework of rules in the classroom environment.

Internet Based Education: In this method, the lecture notes are put into place of web pages. The titles and the contents of the course, the syllabus, the information about the instructor, homework, examination dates, advices of the instructor to the students, announcements, message board (forum) and online examination are placed in these web pages. Students and also instructor can leave message or ask a question by using forum page. Besides that, students can have test by using online examination system and also can increase his/her marks by taking high scores in online examination system.

Television Based Education: Selcuk University has own TV channel called "ÜNTV" broadcasting locally in Konya. The course recordings are prepared in TV studio by the instructors and these recordings broadcast in certain days and hours in a week. The students can follow courses by watching this TV channel.

DISTANCE LEARNING INTENDED FOR MASTER DEGREE

Selcuk University Technical Education Faculty is established in 1997. The education keeps on being attended in two departments. These are "Machine Education" and "Electronics and Computer Education" departments.

In Electronics and Computer Education department, some of the master degree courses, "Expert Systems", "Artificial Neural Networks", "Fuzzy Logic and "Soft Computing Methods" are offered by using Internet Based Distance Learning method since 2001-2002 Spring Term. The lecture notes and educational tools are prepared as an html format and inserted to the related web pages. The main page of the web site is shown in Figure 1. The menus of main web pages are prepared in Turkish and English with respect to feasible international platform. Besides the master degree courses, some other lecture

notes are hold in this web site. These are “Hypertalk” and “Revolution” courses. However the lecture notes of undergraduate courses, “Microprocessors” and “Computer Arithmetic” are also taken place in the same web site. “Microprocessors” course web pages are designed by using Macromedia Flash software (Figure 2).



Figure 1: The Main Page of Web site.

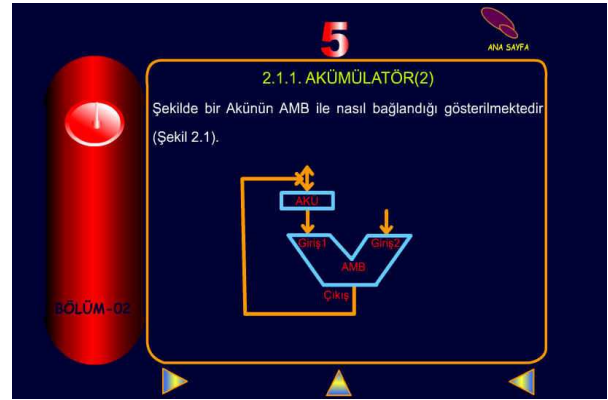


Figure 2: Microprocessors Web Pages

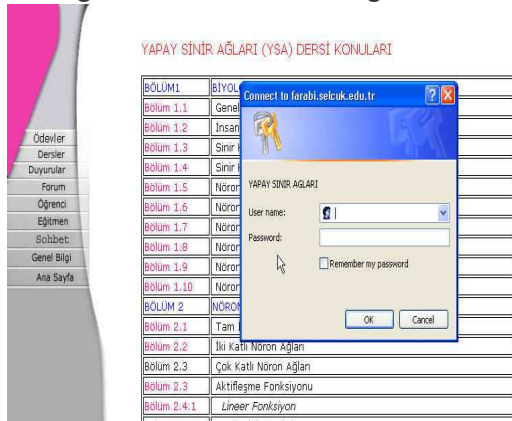


Figure 3: Password Access



Figure 4: Message Board (Forum) Page

The master degree students must have username and password to log on the web site (Figure 3). The lecture notes have been separated according to the subject titles. In the web site, there are student’s page, instructor page, announcements page, homeworks page, links page and message board (Forum) page. Students and also instructor can write message or ask a question by using Forum page (Figure 4). The instructor and the students can see all messages and reply these messages. The homeworks are sent to the students by using e-mail. The replies are also sent by using e-mail. The final homework is delivered to the instructor by personally at the end of the term. Usually the final homework is about making a computer programme to solve small scale problem.

The first reason of preferring distance learning is hardness of participation to these courses for students who are far from the campus. The majority of the students is from outside of Konya and work in regional Vocational High Schools. Some of them are working in other companies and they have been confronted with permission problems. Distance Learning lets these kinds of students have these courses by removing the time and locality constraints. Last but not least, demands of using technological possibilities in education area have a big role for this kind of education being preferred.

By looking the application results of distance learning, we can see that;

- It has been provided that the education has been shifted from traditional methods to the contemporary methods that use knowledge technologies.
- The problems of time and locality have been disappeared. The students can reach to the lecture notes from anywhere around the world. In other words, the students can learn by himself/herself so the education will be permanent.
- The students are forced to use of computer and internet technology

The number of students and the success rates are shown graphically in Figure 5. As seen in this figure, majority of the students participated from the outside of the campus. Besides that, the success rate is about 82 percent. Students must have the course of Expert System, Artificial Neural Network and Fuzzy Logic as prerequisite to take Soft Computing Methods course. Soft Computing Methods course hasn't been taken placed in this figure since it is offered just one term and just three students have it in each term.

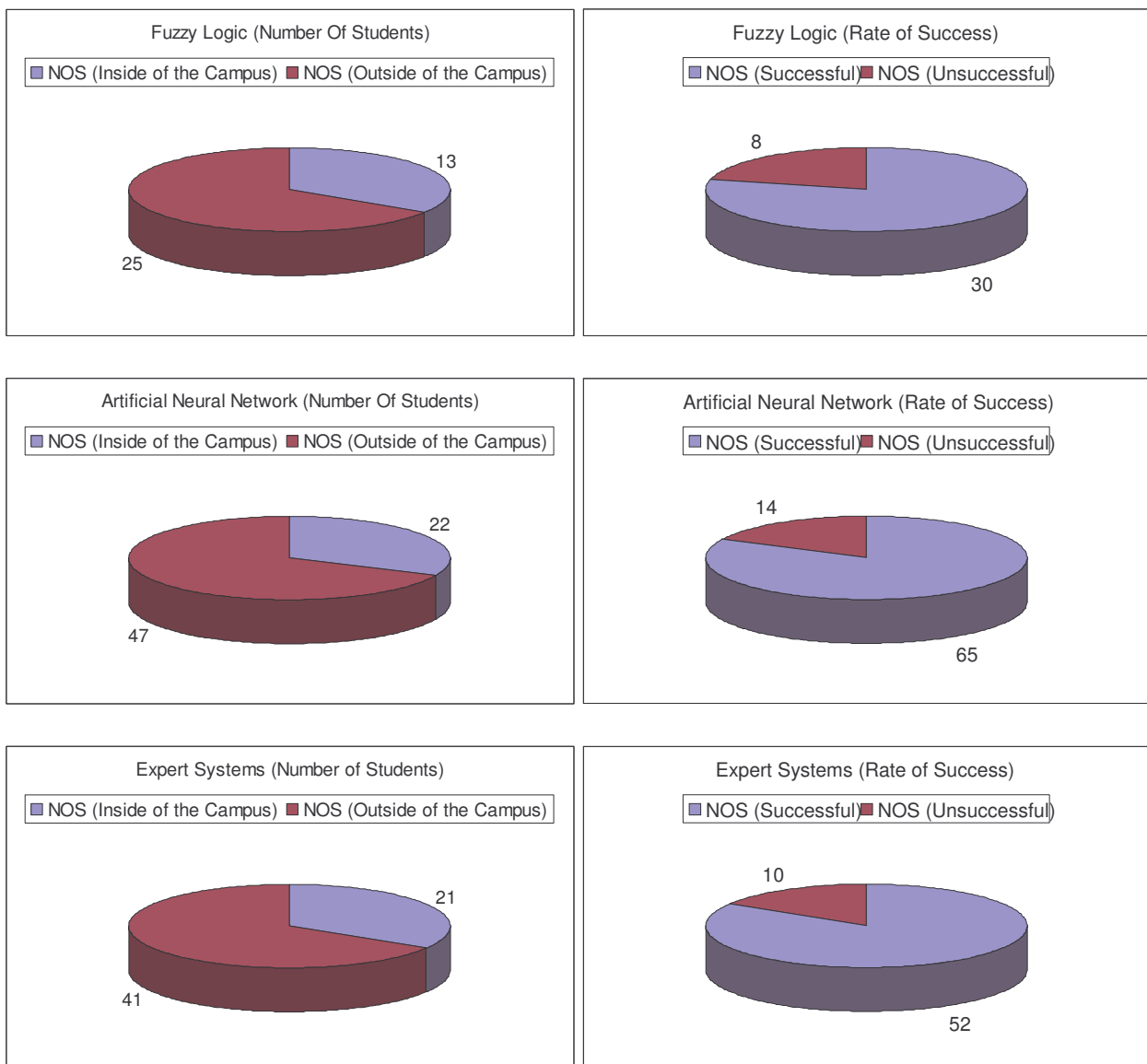


Figure 5 Results of Distance Learning Application.

In the beginning of this application, it was hard to prepare the lecture notes and the materials of the courses. Now, the lecture notes and other materials are being upgrading by the instructor according to the new developments. Also preparing the homework must be done carefully. The questions in the homework are prepared differently for every

student since they can plagiarize the answers from each other. The purpose of letting every student have homework is to force the students to study. In addition to this, some questions get the student to search from internet and other sources.

The final homework is about solution of a problem by writing small scale code as software. The student delivers the final homework personally and explains it to the instructor so the lecturer can decide whether the student does it by himself or not.

It is observed that the number and the variety of the students have been increasing term by term. Some of these are out of the computer department such as "Machinery Engineering", "Agriculture Machinery" etc. The web site of this programme can be reached in internet address as follow: <http://farabi.selcuk.edu.tr/egitim>.

CONCLUSIONS

After serving our application in six terms, it has been seen that the popularity of Distance Learning (E-Learning) Application in Master Degree on Computer Science increasing day by day. Especially, the number of participants outside of the campus is increasing. Also by analyzing the experimental results, we saw that the success rate of all courses is approximately 82 percent. It can be said that such method of education we applied is very useful and productive by taking into account of the feedbacks of the students.

REFERENCES

[1] Akandere O., Kocer H.E., Altun A.A., The Place of Distance Learning in History Education and Selcuk University Distance Learning Programme, History Education and New Approaches National Symposium, Canakkale, Turkey, 2002.

[2] Başkömürçü G. & Öztürk Y. The Design of the Education Systems. 1.st Turkish International Distance Education Symposium, Ankara, Turkey, p. 55,1996.

[3] Carrasquel J., Dann W.P. Using the Web to Support Distance Learning of Computer Science. Proceedings-Frontiers in Education Conference, Vol.1, 1998, IEEE Piscataway, NJ, USA, 98CB36214, pp. 477-478.

[4] Deshpande S.G., Hwang J.N. An Interactive Virtual Classroom-multimedia Distance Learning System. Third Workshop on Multimedia Signal Processing. IEEE 1999, pp. 575-580.

[5] Lau L.K. Distance Learning Technologies: Issues, trends and opportunities. Idea Group Publishing, Hershey USA, 2000.

[6] Ogut H., Allahverdi N., Kocer H.E., Distance Learning Applications in Selcuk University, NEU-CEE 2001 Electrical, Electronic & Computer Engineering Symposium - Northern Cyprus, pp. 216-219, 2001.

[7] Okawa K., Ijuin Y. and Muari J. School of Internet-building a University on the Internet-. IPSJ DICOMO, pp. 65-72, 1998.

[8] Pison T. Distance Learning is an Opportunity, IEEE Circuits & Devices Magazine. Vol. 13 no 2, pp. 41-43 March 1997.

[9] Wiesner P. Education and Careers: Distance Education: Rebottling or a new brew? Proceedings of the IEEE, vol. 88, No 7, pp. 1124-1130, 2000.

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