OPEN COURSEWARE IN DESIGN AND PLANNING EDUCATION AND UTILIZATION OF DISTANCE EDUCATION OPPORTUNITY: Anadolu University Experience

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INTRODUCTION

Depending on the evolving technological possibilities, distance and online education applications have gradually gained more significance in the education system. Regarding the issues, such as advancements in the server services, disc capacity, cloud computing opportunities resulting from the increase in the number of the broadband internet users, web design applications; and increase in the number of mobile device and social media users and the time spent on the internet, traditional reading and working habits as well as the preferred information resources of man have considerably changed. In accordance with these changes, it has become an inevitable necessity to improve the higher education courses and learning materials. Any higher education system, which fails to keep up with these requirements, will inevitably have difficulties in providing the students with the necessary knowledge and skills within an appropriate workload frame. Within this context, one of the fields to benefit from distance and online education opportunities is undoubtedly "architecture and design education". Although the use of computer technologies is inevasible and highly intensive in this field, the speed of conformance with the rapid technological changes and the adoption of the advancements is considerably slow compared to others. However, it is still among the fields where the technological opportunities are utilized at most. Thereby, distance and online education technologies present an essential potential to help students achieve the required planning and architectural knowledge and skills. In this respect, this article evaluates the distance and online education opportunities for design and planning education through the experience of Anadolu University.

Keywords: **Design and planning education, open courseware, distance and online education, architectural education.**

DISTANCE EDUCATION

In today's economy, knowledge has become the most important factor determining the level of competitiveness and the development of societies. In transition to the knowledge-based economy, information technology is used in all areas from education to healthcare (Tsolakidis, 2000).

Development of human resources and lifelong learning are the primary focuses. While developing and changing technological opportunities in global education enable the development of common and shared solutions, at the same time they give rise to increased individual expectations and the necessity to evaluate education quality through international standards (Ozfırat, A., Yürüker, S. 1999).

Distance education is a technique that provides an opportunity for education. This way of teaching is appropriate for people who work very hard, start working at early ages, have financial difficulties, lack of livelihood, haven't completed university education (Demiray, U., 1999) and think traditional education teaching and learning method limited. Furthermore, distance education is a link between planners and practitioners who design learning activities. Varieties of instructional units and through various media are provided in a particular area (Demiray, U.1999a, Alkan, C.,1998, Demiray, U.,1999b).

Distance education works extent more than 200 years ago. In 1728 an advertisement was found in Boston newspaper that stenography lessons were given by letters. In the 1890s, an open education program was conducted outside of the campus at Queensland University, in Australia. A similar program was realized at Colombia University, in the 1920s. By the 1930s, radio was used as a distance education tool by many schools. In the 1950s, paper-based communication, which was used for military purposes in USA, was used for distance education. In 1974, this process gained momentum with the establishment of British Open University. By the 1980s, distance education system was started by Anadolu University (Isman, 1998, Inceelli A. Candemir, Ö. Demiray, U. 2004). It was initiated with the printed course materials and TV-based teaching but learning system changed depending on changing circumstances. Now, distance education system is serving over a million of students and led to the emergence of mega-university. The technological developments of internet and communication reduce the costs in distance education and also provide extensive use of visual materials and simultaneous or different time applications. Interaction and communication are very important in education.

At first, even though distance education technologies weren't generally interactive, by the help of evolving technology material interaction increased between learner and learner or learner and teacher (Patrick, 2000).

Developing technological possibilities in parallel with the use of broadband internet and the number of users and increasing the disc capacity provide us open courseware as a new learning material. Open courseware provides important opportunities both distance and online education, and formal education.

OPEN COURSEWARE

The first application about how open courseware affects the academic environment was carried out "Open Courseware" in MIT (Massachusetts Institute of Technology). Through this project in 1999, 1800 plans of lessons, notes, exercises, questions and answers were reached by everyone using internet from all around the world. Also, MIT pioneered to become information society to the other universities and institutions. At the same time this structure has been organized in course format and it can be freely available. It is suitable for usage and processing with specific license conditions like (creative commons).

Shortly, it can be described as high quality of educational materials. Open Courseware can be prepared not only by educational institution and can be opened for free usage via internet, but also by competent academicians and instructors http://ocw.mit.edu/index.html), http://www.iasted.org/conferences/formatting/Presentations-Tips.ppt, Çağıltay, 2007, Bayamlıoglu, 2006).

The biggest difference of open course wave from other web-based teaching is free and open to everyone. After the success of MIT, different universities started to create similar systems in this area. On October 2006, British Open University has led to everyone its resources without any restrictions. This system is called "Open Educational Resources" with a budget of £ 5.6 million. Infrastructure of Open Courseware system, the usage of Open Source Software – OSS is noteworthy. Today's, Open Source Software products and tools have been extensively used. Due to the fact that Open Source Software is in competition with each other, it is more easily to use and better products are on the market (Göktürk, Gürses, Çağıltay, 2010). The similar effort in Turkey are Yunusemre Portal which covers open learning courses in Anadolu University and Anapod which covers formal programs.

The aim of Open Courseware is to provide most effective learning according to the contemporary education system. Another aim is that it should be prepared to the needs of both learners and teachers.

There are some standard rules to use the materials effective and efficient. In this sense, there are different alternatives available for distance education (http://www.authorstream.com/Presentation/eoiuser-121726-make-good-presentationmaking-presentations-education-ppt-powerpoint).

AUDIO TOOLS

Telephone, video conferencing and short-wave radio, which are interactive teaching tools, can be considered as audio materials. Passive audio tools (one-way) are sound recordings and radio. Audio tools can be used to detect the sounds of the speaker or to keep secret of the speaker's identity in some situations such as psychology.

In addition to this, open courseware about music education should include audio files. However, owing to the evolving technological possibilities, learning sound recordings has been gradually losing popularity (Göktürk,M., Gürses, M., Çağıltay, K., 2010, Gujjar, A. A. Malik, M.A. , 2010).

VISUAL TOOLS

Slideshow as an instructional tool video, and film and moving images such as videotape or cassette can be example that real-time images combined with sound effect. Slideshows (Microsoft PowerPoint (ppt, pptx, pps etc.) are the most commonly used presentation technique for open courseware.

Also, presentations prepared by adobe acrobat (pdf) are in a widespread way for open courseware. The following conditions must be considered for the standard presentation (http://www.uni-hamburg.de/ihf/goodpresent_e.pdf Göktürk, Gürses, Çağıltay, 2010).

- **Average slideshow 30-40 is suitable for one-hour lesson but it changes for special requirements.**
- **Slideshows can be reinforced by additional writings under pictures so it can explain itself.**
- **Instead of using mixed background design, simple background designs should be used and white background should be preferred as much as possible.**
- **Font size shouldn't be smaller than 18 and rare and different character font should not be preferred.**
- **Instead of images, drawing and formulas should be used because separable components can be grouped.**
- **Transitions, animations, special effects and automatically time should not be used unless necessary. "Open licensed information" should be located in the last slide of the presentation (Cağıltay, 2007).**

ANIMATION

Animations, which are presented as open courseware, can generally be used an area related to simulation and visualization such as science, engineering and social science. The realization of animations in Turkish, satisfactory resolution of the screen and designed as reusable should be taken into consideration. Satisfactory resolution of the screen is accepted at least 320x240 pixel except for special situations. Adobe Flash, HTML5 or Java Applet should be preferred in order to reinforce animation and simulation. In addition to this, Microsoft ActiveX can be accepted for presenting animations if it is prepared appropriately (Olakulehin, F.K. 2007).

VIDEO

Video course materials can have common features and have different types. The following conditions must be considered for standard presentation except for special situations. At least 640x480 pixel and 15fbs resolution (preferentially 20-30 frames)

- **Relatively small size which formed algorithm compression**
- **At the beginning of the video: title of the topic and information about the speaker and open licensed information**
- **Turkish content**
- **For one course 40-60 minutes content (small video parts are also calculated and added to the total time)**
- **If it is possible, transcript of the content can be added as subtitle and this is very effective way (Ural, 2007).**

DATA

Computers are the electronic machines, which save information electronically. For this reason, data word represents a widespread group as an instructional tool.

Computer applications show variety for distance education and it should include the following steps. In computer based teaching, computers are used to teach particular lessons to the students but for limited purposes (Namwar, and Rastgoo, 2008).

- **In computer managed learning, computers are used to save students enrolment and success. Teaching doesn't have to be given via computer.**
- **Communication through computer needs to be used facilitating the use of computer applications. Electronic mail, computer conferencing, electronic bulletin boards and WWW (World Wide Web) can be given as an example (Ozfırat, A., Yürüker, S. 1999).**

TEXT

The main elements of distance education program are printed resources and other tools form the basis. Many printed resource type is available. These can be arranged as textbooks, workbooks, lesson plans and supplementary books. During the preparation of the text, the aim of teaching and/or learning can be understood in Turkish. There is no prerequisite for the content of the structural course. Visual components can be added into a text. While preparing a course text, these are the remarkable points as structurally;

- **Letter size and style must be selected basis, not exhausting from the readers.**
- **Commonly used fonts should be selected.**
- **A4 size should be used as much as possible.**
- **Page number should be written.**
- **JPEG or vectors compression of visual components should be preferred.**
- **The background colour should be white and plain (OECD Centre for Educational Research and Innovation, 2007).**

OPEN COURSEWARE AND PORTALS

Thanks to the increasing disc capacities of information technologies, widespread use of mobile devices, advances in web technologies, cloud computing facilities and widespread use of broadband internet infrastructure, another important source of open courseware came out (Demiray, E. Sağlık, Gürses, N. Ozgür, and A. Z. Candemir, A. 2000). It is an application that different universities and educational institutions become members and share open courseware with users all over the world. I Tunes U platform, which is created by Apple Company, provide this idea to spread and develop the infrastructure of the platform from the basis. Similar approaches are seen some websites such as Coursera, OER commons, OER University and Curriki. Open courseware from different sources brings together users, students or people who want to improve themselves in different topics.

ANADOLU UNIVERSITY OPEN COURSEWARE and DISTANCE EDUCATION OPPORTUNITIES

Since 1980s, there has been important infrastructure of open courseware and distance education at Anadolu University. There are TV studios, sound studios and postproduction studios for the preparation of the TV programs at Anadolu University. Since 2010, Anadolu University has an agreement with TRT, which is a state television channel. In accordance with this agreement, Anadolu University has established TRT School channel, which has wide audience from China to England. TRT school channel can be watched from satellite, terrestrial and cable broadcasting on TV. Through this channel, Anadolu University prepares and publishes not only open and distance education for students but also educational programs for everyone from 7 to 77.

In this aspect, University put in place an innovative TV production centre. According to Belawati 2012, in US, >6.1 million students were taking at least one online course in fall 2010 & 31% of his students now take at least one course online (USA 2011 survey of online learning). 65% of his institutions in the US have online learning in their long-term strategy. According to Belawati 2012, the world's largest 18 universities in the distance and online education have 14.349.425 students. When we look at the active students' numbers, Anadolu University has 1.041.180 active students and is placed 5th ranking in the World.

Table1.
Top 10 Mega Universities in Distance and Online Education (Belawati, T., 2012)

Rank	Institution	Location	Founded	Enrolment*
1	Indira Gandhi National	New Delhi, India 1	1985	3,500,000
2	Open University of China Beijing,	China	1979	2,796,100
3	Allama Iqbal OU	Islamabad, Pakistan	1974	1,806,214
4	Payame Noor University Tehran	Tehran Iran	1987	1,101,182
5	Anadolu University	Eskisehir, Turkey	1958	1,041,180
6	Universitas Terbuka	Jakarta, Indonesia	1984	607,712
7	Bangladesh	Gazipur, Bangladesh	1992	600,000
8	Andhra Pradesh Open University	Andhra Pradesh, India	1982	450,000
9	Dr. Babasaheb Ambedkar	India	1982	450,000
10	Yashwantrao Chavan	Nasik, India	1989	400,000

Effectuated on November 6, 1981 and 5th and 7th of law No: 2547 which is about reorganization of Turkish Higher Education, "Continuous and Open Education" were given to Turkish Universities. Then, this task was given to Anadolu University on July 20, 1982 depending on Decree law, number 41. Open Education Faculty, which exists from Faculty of Communication Sciences, was charged with distance education service all around the country. Open Education Faculty started to distance education program with two departments, which are Economics and Business Administration between 1982 and 1983, then continuously expended its service area. Open Education System in 1992, education was restructured according to the requirements of new conditions depending on decree law No: 496.

Economics and Business Administration programs were transformed into four years faculties. Open Education Faculty was appointed to carry out some works related to open education, works about associate's degree and bachelor's degree, and works about certificate programs. Anadolu University is the first higher education institution with the distance education system in Turkey. Furthermore, while managing the lessons, not only printed materials and TV broadcasts but also internet, computer-based teaching and video conferencing are used to adapt the students these advanced technologies and make significant contributions to the development of distance and online education in Turkey and in the world. University gives academic consulting and implementation services (face to face education) in convenient areas.

In addition, distance education programs founded in 2009, different learning environments were started to be used in distance and online education with their own models. These learning environments are as follows:

- **E-book**
- **E-lesson**
- **E-television**
- **E-homework**
- **Synchronized lessons**

These programs are carried out as an innovative understanding and students can optionally reach advisory academic services for each course on the internet by using their passwords. Moreover, students can prepare and present their assignments on the internet. However, even in these programs students are expected to do their internship. These programs are listed below:

- **Information management associate degree program**
- **Geographic information systems associate degree program**
- **Pharmacy services associate degree program**
- **Food quality control and analysis associate degree program**
- **Chemical technology associate degree program**
- **Medicine and aromatic plants associate degree program**
- **Medical laboratory techniques associate degree program**

Another significant course tool of Anadolu University is Anapod, which is Anadolu University open courseware portal. Anapod facilitates to share something by using word processor application such as course materials of faculty members, all kinds of visual and audial documents. Word processor application is easier than writing process.

ANAPOD application is a new education model within University's distance education process, which is highly applicable for many disciplines.

ANAPOD lecture portal project was first developed to provide an easy transfer process of any lecture material and activities of Anadolu University into the web environment easily. The address of the system was determined as http://anapod.anadolu.edu.tr

When the podcast producer system was stabilized after a series of patches released by Apple Corporation, a team of academic staff from various technical and social backgrounds was formed by the president of Anadolu University in April 2008. By courtesy of the technical infrastructure of ANAPOD project, lecturers recorded their lectures and other lecture materials with a laptop and transferred them into the website as an audio or video file easily.

Blog and wiki technologies were used to present these transferred materials in the Internet environment. With the blog technology, which is also known as the Internet diary, the entire context recorded was illustrated on the blog page of the related lecture according to the date order.

Wiki technology, on the other hand, enabled the lecturers to give lecture comments. A technical support team was also established to train the academic staff and manage the system (Çabuk, A., Şenel, H., Polat, H., Çabuk, S.N., 2009).

ANADOLU UNIVERSITY PLANNING and DESIGN EDUCATION EXPERIENCE

In this part of the article, Anadolu University in connection with the planning and designing experiences will be shared. These experiences are courses, which are given through distance and online education in different programs, education program, and also open course materials prepared regarding to planning and designing for formal education. The first sample is graduate program of Geographic Information System. Some of the courses in formal education program are carried out on the formal web-based application from not a particular place but in a synchronized way. At the last quarter of 20th century, on the purpose of carrying out planning studies quickly and efficiently, and facilitating the decision process of planning studies, in order to eliminate the lack of human resources related to geographic information systems emerged in Turkey; associate degree, bachelor degree and graduate programs of geographic information system and also certificate programs are commonly used not only for open courseware and online academic counselling but also for online courses.

GEOGRAPHIC INFORMATION SYSTEMS GRADUATE PROGRAMS –master degree and PhD

As mentioned above, even though geographical information systems are extremely important tool for planning process, in this regard there is a lack of academic programs in our country. Due to the lack of academic programs, there is a lack of qualified and significant staffs in the sector. For this reason, associate degree, thesis or non-thesis master degree and PhD. degree programs of geographic information systems take part within Anadolu University.

One of the biggest problems encountered in graduate programs is preferred by students in many different countries of Turkey because of the scarcity of relevant programs and arriving to Eskisehir and departing from Eskisehir is generally problematic situation for working students.

On the other hand, there is a problematic issue that experienced faculty members live in other cities. Therefore, some courses of programs work on the internet simultaneously. Students via computer including wide-band internet access, a camera and a loud speaker or via a mobile device, the virtual classroom can be accessed on the web server determined by our university. With this application, teacher and students share course materials, presentation material, virtual whiteboard, personal devices and all kinds of desktop application.

Everybody can join the lessons by getting permission and everybody can interact with each other both teacher and students, and both students and teacher.

The biggest advantage of this system is that nobody has to be physically in a particular place. Students and academicians, from their homes, internet cafes, hotel rooms and trips; shortly, any mobile devices with a broadcast internet connection can participate in the courses.

In this context, even if the teacher is not the same place with the students, it is as effective as face-to-face communication thanks to the efficient visual and verbal communication system. The system gives a chance to share something on the desktop so the students can reach the information much more easily.

Therefore, computer technology and software lessons are more effective than face-to-face communication.

Thanks to virtual classrooms on the internet, the teacher and the students from different places can meet and have a chance to share something with each other. This system has been used for two years in geographic information system training programs and courses and it is demanded from other institutions. Students, who are participated the lessons in the evening training, get online virtual classroom. Software applications, training videos, lectures, electronic presentations, web pages, open course materials and so on not only shared in Anapod open course materials portal but also meet with students via social media like Google docs, Google +, Youtube, Dropbox, Facebook.

GEOGRAPHIC INFORMATION SYSTEMS ASSOCIATE DEGREE PROGRAM

In order to minimize the mid class employee about mentioned above geographic information systems, it is two years associate degree program that depends completely on distance education technologies. It was established in 2009. There are web pages for all courses in the program and in these web pages; weekly assignments, lesson descriptions, course materials, application data and all other kinds of course materials are shared with students.

In addition, 4 hours online academic counselling is given for each course to students who want to join voluntarily. Through this technological application, 500 students meet with academic advisors who are responsible for the course and share their ideas and questions related to lesson. In a term, there are at least four homework are given to the students for each course and if the students don't do three homework, they face with failing from that course. Furthermore, students are expected to do internship for four weeks in order to gain knowledge and skills appropriately. Students profile should be examined after new education year starts.

Most of the students are not from new graduate high school students. Students are generally graduated from the departments of Universities, such as urban planning, landscape engineering, map engineering, mining engineering and forest engineering. These students, who are in need of geographic information systems for their career, re-enter the university entrance exam in order to develop their skills without leaving their hometowns.

DEPARTMENT OF ARCHITECTURE, LANDSCAPE DESIGN, COMPUTER AIDED DESIGN and ECOLOGICAL PLANNING & DESIGN COURSES EXPERIENCES

Web media and online education are mainly based on visual and verbal interaction and even if they provide suitable environment for architectural education, architectural education lags behind a little bit about online and distance education.

Anadolu University open courseware portal in Anapod, sharing open courseware has launched for three courses.

Within these course materials, there are not only face to face course records but also all kinds of presentation materials, requested to be read the documents, links of the websites related to courses, students presentations and projects including the jury.

DEPARTMENT OF ARCHITECTURE
-ONLINE DESIGN STUDIO- VIRTUAL CLASSROOM

Within Anadolu University engineering faculty, architectural projects are conducted simultaneously in virtual classrooms with video conferencing equipment in different universities. This is an infrastructure project conducted by departments of architecture faculty members. Within this context, students from different universities and cities can log in simultaneously in a virtual classroom and projects with the help of broadcasting are managed from different universities. However, the major difficulty of this system is in the need of equipped with expensive technological devices. Even if it is not conducted independent location, common architectural design courses in different universities are conducted very successfully by the architecture faculty members and the students.

SOCIAL MEDIA EXPERIENCE

Social media as a platform has become an environment that people spend more time day by day. Studies show that university students spend their time to share something via social media and follow others sharing during the day. Social media experience, people start using social media 24 hours a day with the help of growing mobile internet access. Thanks to this information, variety groups are created in social media for some formal courses and useful sharing related to the courses has been made. This experience shows that social media is quite beneficial open courseware for some courses such as designing and planning education which based on visual and verbal communication. Also, social media is candidate that it is used willingly and shared something by the students.

CONCLUSION and RECOMMENDATIONS

During the last 15 years, in parallel with internet infrastructure and the usage of it have been developing rapidly and now our lives are getting shape depending on important amount of internet technologies. Our reading habits and information resources are directed towards web technologies as a result of widespread use of broadband internet, increasing mobile services, the spread of mobile platforms and mobile devices, 3G-4G, widespread use of Wi-Fi in public areas. In parallel with these developments, in line with the changing habits, distance and online education, and open courseware begin to enter our life every passing day. Nowadays, increasing disc capacity depending on increasing capacity of the server services, cloud computing opportunities and web services, cloud computing opportunities depending on increasing numbers of broadband internet users and increasing use of mobile devices make compulsorily changing types of courses and learning materials in higher education field. However, changing this learning platform and course materials bring about the accreditation of online and distance education program. Knowledge and skills that the students need to gain in online and distance education program should be under control. The most important subjects to be studied are investigating the accreditation possibility of higher education programs conducted with online and distance education for different areas, and proving the same quality for different programs that programs carried out coordination with face to face types.Planning and designing education is one area that needs to benefit from distance and online education opportunities and open courseware. In this area, visual and verbal communications are commonly used for education, and web technologies and multimedia facilities provide much more effective learning environment and program outcome for students.

In this regard, make use of distance and online education and open courseware in planning and designing education will become a big advantage for related programs. However, in order to ensure that good and well-qualified studies should be spread in this field. From this point of view, programs, which are carried out within their respective domains in Anadolu University, are not only important for Turkey but also important for similar programs in the world.

The biggest handicap in this context is that even though the use of computer technologies in the fields of planning and designing is inevitable and used intensely, planning and designing education is a little bit slow and cautious keeping up the technological changes in terms of speed. Important part of academics in the field of planning and designing are always adapting the use of technology later than in many other areas. Planning and designing area lags behind a little bit about online and distance education, and open courseware. It should not be forgotten that distance learning and online education opportunities, open courseware, planning and architectural education, the minimum knowledge and skills targeted to gain by students, and targeted program and learning outcome have important infrastructure potentially. Academicians in this field and academicians who produce theories related to planning and designing education should work on expansion of online and distance education opportunities and accreditation.

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