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Comparison of the Proficiency Level of the Course Materials (Animations, Videos, Simulations, E-Books) Used In Distance Education

Hakan KÖR [a]*, Hamit AKSOY [b], Hasan ERBAY [c]

[a] *Hitit University, Sungurlu Vocational School, Department of Computer Technology, 19300 Çorum, TURKEY*
[b] *Hitit University, Sungurlu Vocational School, Department of Computer Technology, 19300 Çorum, TURKEY*
[c] *Kırıkkale University, Faculty of Engineering, Department of Computer Engineering, 71451 Kırıkkale, TURKEY*

Abstract

Activities in the field of distance education have shown a significant improvement in the world and Turkey in parallel with the technology. Activities in this field started through newspapers and letters and they were improved by using printed material, radio, television and internet. Recently, as well as the use of computer and internet have become widespread in the world, web-based distance education systems have been used more than the other teaching tools. In Turkey, departments of distance education attached to the Council of Higher Education were opened in large number and they are still continued to be opened. In this paper, in terms of quality and interactivity it is aimed to evaluate the course materials used by the institutions of distance education. Through the surveys applied to the institutions of distance education determined by choosing from the different regions of Turkey, it was aimed to find out the faults and defects of the course materials in terms of quality and interactivity. By sharing the obtained outputs with related institutions, formation of more efficient distance learning materials will be possible.

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Keywords: Distance Education, E-learning, Teaching Materials;

1. Introduction

Distance education is defined as a simultaneous or no simultaneous learning process in which individuals have the opportunity for learning independent from time and place, and in which various methods and techniques are used in learning activities.

* Corresponding author: Hakan Kör Tel.: +0-90-364-3116000
E-mail address: hakankor@hitit.edu.tr

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In the first years when distance education method was used, letters, newspapers and printed materials were used as a learning tool. Widespread use of computers and advancements in information technologies have significantly developed the methods and techniques used in distance education. Recently, web-based e-learning systems and virtual class teaching have been used commonly as well as radio, television and video conference used in distance education (KÖR, 2013). Advancements in technology enabled transfer of course books used in printed version to digital settings. The printed materials used in distance education were transferred to digital settings (BOZKURT, 2013).

Despite long distance between the learning and teaching groups, the learning groups have the opportunity to learn in virtual classes similar to traditional classroom setting through computers with Internet connection. Parallel to developments in information technologies, video conference, animation, interactive materials, simulation, and web-based learning systems have been started to be used.

Turkey was also influenced by the fast developments in distance education in the world and several distance education departments were opened in universities. The main purpose of this study is to investigate the level of use of information technologies in course materials used during distance education process in universities in Turkey.

1.1. Printed Materials

Upon the launch of use of movable-type printing press by Johannes Gutenberg in the 15th century, spread of free thought, development of scientific research and reforms have gained impetus (McLuhan, 2001). This ensured spread of information by conveying the printed materials to people in far distances. Use of printed materials is considered to be the start of distance education through letter and newspaper.

1.2. E-book

The concept of e-book ensued when a printed book was transferred into computer setting. The first e-book was formed under the Gutenberg Project carried out by Michael Hart in 1971 and the first e-book was the "American Declaration of Independence" (Lebert, 2009), which hence laid the basis of public electronic library.

With the use of web browser in November 1993, Gutenberg Project was opened to access on Internet and many printed materials became accessible as e-books. In 2000s, the launch of Acrobat eBook Reader has ensured a rapid increase in the use of e-book in PDF format. In addition to technological developments in recent years, with the developments in coding languages which enable interactive and substantial content to be integrated into e-books, e-books have renewed themselves and the concept of e-book has updated itself during this development process (archive.org, 2013).

1.3. Video conference

Video conference system is an excellent example of human-computer interface which accommodates conversations and discussions on various issues (Jonathan and others, 1997).

In other words, video conferences are settings where audio; image and data are shared among a person or persons in different places through technological means. Video conference is used in distance education and various business sectors in many countries.

1.4. Virtual Classroom Education

All activities which are carried out in virtual classroom settings, in which traditional education activities are performed as online on Internet and an interaction is ensured between the teacher and learner are called virtual classroom education (Gülbahar, 2009). In other words, virtual classrooms are settings where the learner group communicate the teacher and teaching materials through technology (Kurbel, 2001).

In Figure 1 can be seen a database course carried out through a paid virtual classroom software. The students should be informed about the course time by the teacher in advance. During the scheduled time period, students

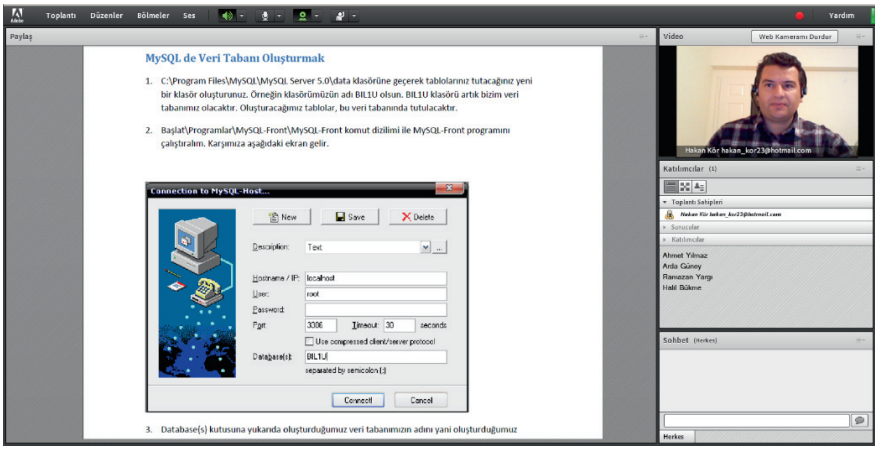

Figure 1. Virtual Classroom Setting

Having the username and password for access to virtual education can attend the course. During the course carried out as virtual classroom education, the teacher is able to project the screen image to all students and give a more interactive and visual course using audio, video, animation or simulation settings. During the course, if the teacher lets, students can ask permission to speak by pressing the button 'ask to speak' and, when permitted, the voice and screen image of the student can be shared with other students.

In virtual classroom settings, the level of communication between teacher and learner has been improved by inclusion of elements improving interaction such as audio and video share, chat, screen share, file and presentation share, white board application and quiz.

In addition to the most commonly used and prepaid Adobe Connect program in virtual classroom education, multi-conversation applications developed by improving web technologies are offered free of charge. Web based and free any meeting and a google product "hang" are examples of these applications. Free applications provide opportunity for simultaneous multi-conversation and screen share.

1.5. Animation and Simulation

Animation is defined as creating several stable images which show an object in motion and playing these images consecutively quickly so that it makes us think that the object really moves (Elliot, and Miller, 1999). Animations, showing an object in motion to create the image of a very stable and quick succession of images by moving the object moves us to think really defines the form of providing (Elliot and Miller, 1999).

Animation in computer is described as making visual effects by using graphic and audio devices (Dolye, 2001). In other words, animation can be defined as animation of experiments and activities, which cost a lot in real classroom settings, by graphic and audio devices in computer. By use of animation, students access more information in a very short period of time, abstract subjects are made more tangible, and the learning concentration of students is improved (Çalışkan, 2002 and Demirci, 2003).

1.6. Interactive Software

The first e-books in text file format were turned into a format with a richer content with text, image, screen and hypertext structure. The developments gained impetus thanks to tablet computers, smart phones and e-book readers, which have recently become widespread, and e-books have become more common (Bozkurt and Bozkaya, 2013).

2. Method

The sample of this research consists of distance education centres in 25 different universities uniformly chosen in

7 regions in Turkey. The participants were asked to voluntarily answer the questionnaire about the use of materials in distance education. The obtained data were analysed with the SPSS data analysis package program and the results are given as tables in the findings section below.

3. Findings

The data obtained from the participants are given in tables. In the tables, the LMS usage of the universities in Turkey, the mostly preferred distance education materials and the levels of materials use are given in percentages.

Table 1. The percentages of the universities use of LMS

Questions about the distance education learning management software's (LMS) and material preparation	Yes	Percentage	No	Percentage
Do you use learning management software's (LMS) during the learning process in distance learning centre?	23	92	2	8
Do the distance learning centre students follow the courses through LMS?	22	88	3	12
Do you have a team for preparing course materials in distance learning centre?	19	76	6	24

When the table 1 is analysed, it is seen that %92 of the universities use LMS, %88 of them follow the courses through LMS and %76 of the universities that participate in the survey have the employee in charge of preparing the distance education course materials.

Table 2. The Kinds of LMSs that are used in universities

The LMSs that are used in distance learning.	Paid Software's	Percentage	Open Source Software's	Percentage	Total
Which software's do you often prefer in the process of preparing the materials for distance education courses?	22	88	3	12	25

According to the table 2, the great majority of the universities in Turkey with %88 use paid software's in the process of preparing the materials for distance education courses.

Table 3. The Material Types that are used in distance education

	Material Types	Institution Number	Percentage (%)
Which materials below are used in the distance education courses?	Text Document	20	80
	PDF Documents	24	96
	Video	23	92
	Animation	16	64
	Sound Files	19	76

	Interactive Practices	17	68
	Simulation	0	0

In table three, when the material types that are used in the distance education are analysed, it is seen that the majority of materials that are used consists of PDF documents with a percentage of %96, however it is also seen that the least used materials are animation with %64, interactive practices with %68 and simulations are never used.

Table 4. Materials that are wanted to be used in distance education

	Material types	Institution Number	Percentage
Mark the material types that are not used in distance education courses now but that you would like to be used in the future.	Video	1	4
	Animation	5	20
	Simulation	13	52
	Interactive Practices	20	40
	Materials that are compatible with mobile devices	19	76
	Virtual Class Practices	7	28
	Teaching Management Systems Software's	2	8

In table 4 the materials that are not used by the universities now but the materials that are wanted to be used by the universities are seen. According to table 4 it is seen that the course materials which are mostly wanted to be used are the materials that are compatible with the mobile devices. Simulations with %52 percentage and interactive practices with %40 percentage are the most wanted materials to be used.

Table 5. The number of Materials -Video, Animation and Sound Files- that are used in distance education

Questions about the use of materials	0 (N)	%	1-5 (N)	%	6-10 (N)	%	11-15 (N)	%	16 + (N)	%
How many videos on average are used in distance education courses?	5	20	10	40	3	12	6	24	1	4
How many materials including animation on average are used in distance education courses?	5	20	14	56	3	12	1	4	2	8
How many sound files are used on average in distance education courses?	4	16	13	52	3	12	3	12	2	8

When the table 5 is analysed, the rates of three different materials that are used in distance education courses are seen. When the number of videos used in the course is analysed, it is remarkable that no video material is used with %20 percentage, the greatest percentage with %40 ten universities use video materials in the range of 1-5. When the animation numbers for a course are analysed, it is seen that the percentage of the universities that do not use any materials including animation is %20, and it is also seen that14 universities use materials including animation in the range of 1-5 with the greatest percentage of %56. Finally when the use of sound files is analysed it is seen that %16 of the universities do not use any materials including sound files, and 14 universities use sound files in the range of 1-5 with the greatest percentage of %56.

Table 6. The Number of Interactive Material and Simulation that are used in a course in distance education

Questions about the use of materials	0 (N)	%	1 (N)	%	2 (N)	%	3 (N)	%	4+ (N)	%
How many interactive materials are there in the distance education course on average?	8	32	7	28	4	16	1	4	5	20
How many simulation practices are there in distance education courses on average?	17	68	5	20	2	8	1	4	0	0

When the table 6 is analysed, the use of two different materials in distance education courses is seen. When the numbers of interactive materials for a course are analysed, it is seen that no interactive material is used with % 32 percentages and only one interactive material is used with % 28 percentages. When the number of simulation practices that are used in the process of a course preparation is analysed it is seen that no simulation material is used with % 68 percentages and five universities use one material that includes simulations and this is the %20 of the total.

Table 7. The Providing of Distance Education Materials

How are the materials that are used in the distance education courses provided?	N	Percentage (%)
They are provided from the outside of the institution.	6	24
They are composed by the university academicians.	19	76
TOTAL	25	100

When the table 7 is analysed it is seen that the great majority %76 of the universities that actively provide distance education provide the education materials from the outside of the institution.

4. Results and Suggestions

When the findings are analysed, it is seen that most of the universities that provide distance education have the LMS and at the same time students in most of the universities follow the courses through the LMSs and these show that universities give importance to LMSs.

A great majority of the universities that participate in the study have their own private team to prepare the distance education materials. With the help of these private teams, many universities prepare distance education course materials within their institution and bring them into the use of students. Most of the programmes that are used in the process of course preparation are paid software's and it shows that distance education centres give great budgets to material preparation.

The materials that are used in the distance education centres usually consist of PDF files and videos. It is seen that animation, simulation and interactive practices are less frequently used in the process of course material preparation. This shows that while preparing the course materials the material preparation teams in universities prefer the material types that are easier and faster to prepare just like PDF, videos and text files. In order to be understood the courses easier and better by the students, it is suggested to use the materials which are visual-rich. It is believed that interactive and visual materials make the courses more pleasant and increase students' motivations.

Many universities do not use animation, simulation and interactive practices. It is suggested to put the material preparation teams into in service training in order to make improvements in these areas.

Another thing that the universities think to be lacking in their institutions is the contents that are compatible with mobile devices. Almost all the students have smart phones or tablets so the development of the contents that are compatible with the mobile devises has greater importance.

Distance education centres' purchasing of software's and materials from outside sources causes great costs for

universities. It is offered as a suggestion to develop software for national course material preparation to the council of higher education which the universities are attached to.

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