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**TRANSFORMING TRADITIONAL CLASSES INTO E-LEARNING PLATFORMS:
A MODEL STUDY**

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Abstract: *The variety of teaching environments is on the increase thanks to the rapid development of technology, and the importance of the digital presentation of education as the traditional teaching environments has become digital and web based teaching. E-learning which has started to use an alternative for traditional teaching has become the recurring topic of many researches. Nowadays, e-learning platforms have been presented to students as web based; however, it is not effective for any materials without presentation file, screen on desktop, asynchrony video file etc. for lesson material in this platforms. The courses conducted in traditional classrooms are presented only via video, and it is used in limited ways in accordance with the system's features. One of the most important constraints is the speed problems of the Internet connection. Although there have been many studies on this subject, they could not be regarded as successful due to their asynchrony. This study aims at designing a model to reduce such constraints in the classrooms and workshops.*

Keywords: *E-learning, video-stream, computer-aided learning, distance education.*

I. INTRODUCTION

Present theories like constructivism emphasize on the importance of teaching guidance and support for the purpose of getting students' learning at the best level and making learning easier [1]. To parallel with this point, a lot of researchers mentioned in their studies about the importance of teaching environment which facilitate the process [1, 2, 3, 4, 5]. The variety of teaching environments is on the increase thanks to the rapid development of, and digital presentation of education has gained importance as the traditional teaching environments has become digital and web based teaching (WBT) [6].

As a result of using the Internet almost in all fields, e-learning called also as WBT can be seen in every stage of teaching [4]. E-learning which has started to use an alternative for traditional teaching has become recurring topic for many researches [7]. The most important reason of this is to have a flexible construction which gives an opportunity to the students to access it without any limit of place and time; so that they can reach e-learning. Wherever they are and whenever need [1]. Although this flexibility has many advantages, it also has some disadvantages. However it is generally categorized as pedagogic the positive and negative part of e-learning (see Fig. 1), because of technical substructures, there are many problems faced by teachers and students alike. In order to show the reasons of advantages and disadvantages encountered because of some technic problems of substructure, it is necessary to do research the relation with time.

When the e-learning is divided into two parts as aspect of time synchronous and asynchronous, the greatest advantage of Internet based synchronous teaching is to provide a chance to giving answer to the feedbacks immediately. As the consequence this flexibility of e-learning, it has a positive effect on the students' academic achievements [9]. Moreover using video-streaming as a

material has successful effects on teaching [10, 11, 12]. Kock [13], explained the reasons of this achievements, because of mimic, body language and intonation which are used in the synchronous education and which have increased the success of students enhancing their motivations.

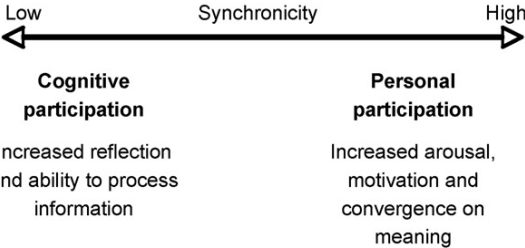


Figure 1. The concepts of cognitive and personal participation [8].

Despite of positive effects of web based synchronous teaching, technical problems are faced by user negatively especially as a result of speed of Internet users negatively. In the synchronous studies made for the purpose of preparing an interaction platform, you can find many researches which show the negative effect of sound and video on users in the literature [9, 12, 14]. Attempts such as decreasing video quality of dimension, getting into contact by using text instead of sound transfer to make this negative effects resulted from low data traffic. But making the dimension of video smaller obstructed the image of some materials used for lesson such as blackboard etc. To be able to be seen well some works have been prepared which enable text interaction instead of sound transfer but it has been deduced that using mouse hinders the students’ active participation in lessons. In some works done by Kuo et al. [9] with the aim of eliminating this limitation, instead of students writing feedbacks by using keyboard to chat part, it has been enabled to solve the problem of changing sound to text by using technology of speech to text recognition (STR) is solved and this has been seen in the decreasing of intensive Internet using.

It is found that e-learning as a synchronous teaching has the greatest advantage by removing problems resulted from intensive the Internet using. Video-streaming in addition to e-learning platforms successfully made by Massachusetts of Technology (MIT) and International Centre for Theoretical Physics (ICTP) are used properly as an asynchronous teaching while the problems resulted from the speed of intensive the Internet is being solved with the help of EyA software [15] dimension of video smaller, it is also decreased problems, which are encountered while pictures are taken from videos in specific times being gotten bigger and making video dimension smaller and also being presented to the students (see Fig. 2).

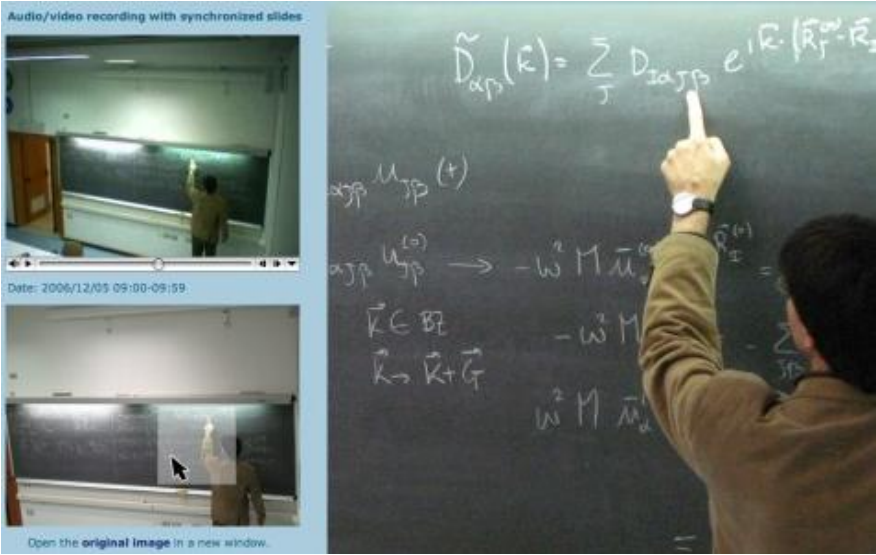


Figure 2. A traditional Lecture example of EyA system (from ICTP).

Although e-learning platform which is developed by EyA software has removed the problems with a great deal such as technical difficulties and the insufficiency of resolution resulted from video dimension, asynchronous system isn't able to give feedbacks immediately because of broadcast. This works has aimed to decrease the difficulties especially for the traditional classrooms to transfer the broadcast to synchronous fixed feedback problems by making some changes in the EyA software presented as an open coded source.

II. METHOD

The source codes of web based e-learning system whose first aim is to present the feedbacks immediately is developed with the help of EyA software. On the other hand, EyA platform is used Linux based but prepared system ASP is again organized with the web programme language to work on the Windows 2008 TM servers. One web server, two cameras and a wireless microphone used for e-learning system.

Web page prepared for related platform consists of 3 modules as a synchronous video streaming, image of course material and chat field (see Fig. 3). Lecturer and general image of class can be seen on the synchronous video streaming module. Students are supposed to see teacher with this method, and they feel as if they were a real class and it aims to increase interaction. Recorded movements during class are turned in 320x240 resolutions by the means of server and transferred to the web field by combining with voice data which was taken from microphone (see Fig. 4).

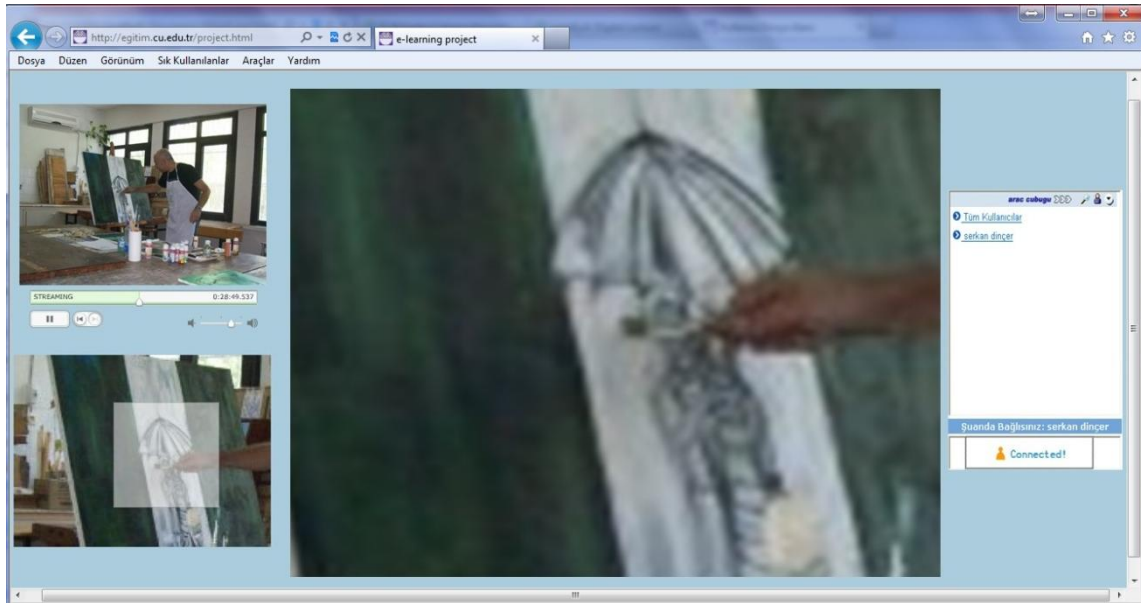


Figure 3. The system's webpage

Course material module consists of two parts. In every ten second, image command is sent to second camera which records the course material, by uploading script in the server. Recorded image after this order is uploaded to the server. Uploaded picture in the server is automatically turned in two different file resolutions -320x240 and 2560x1920- by the script. 320x240 resolution picture is the first part of the course material of platform. In this part, students can reach the second phase which gives them the opportunity to see bigger image of course material by clicking wanted area (see Fig. 2). In every ten second renewed image is updated so students and teacher can see course material at the same time. By using this method, the aim is to have course material in good quality and decrease intense the Internet using.

In the third module, there is a chat part for students to communicate with their teacher and peers. The aim is to increase students' interaction with classmates in the chat part.

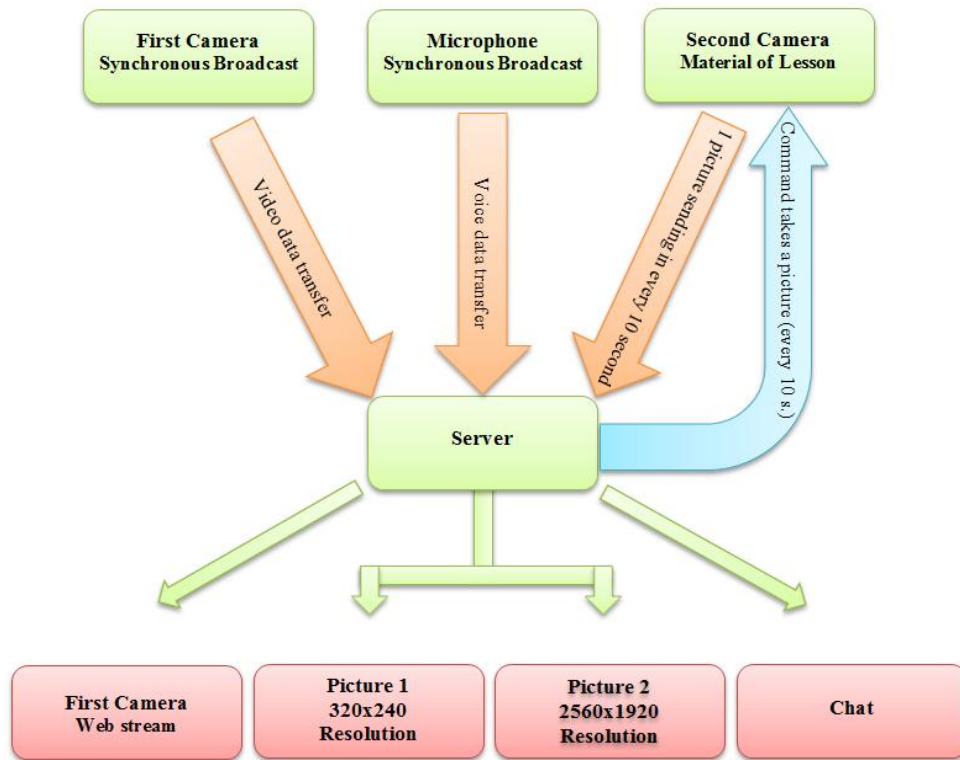


Figure 4. The system's framework

III. CONCLUSIONS

E-learning, also called WBT which has a dynamic construction with the help of rapidly developing technology provides many kinds of utilities to students in terms of the course content and method. So students can easily make interaction with each other and learn by themselves thanks to the possibility of preparing their own programmes [16]. Today, many kinds of e-learning are available and being presented to the students and they turn out to be more successful. For instance; Seng & Mohamad [17] found that students using WBT have much interest in their own working fields and they can also easily take place in discussion.

Many researches have emphasized the important role of interaction in order that WBT reaches success [18, 19, 20, 21]. However this interaction isn't only limited as student to teacher or interaction between students but also it consists of interaction both students to content and interface [22, 23]. When the content is provided from the far, the importance of students' interaction with interface becomes much more vital. The presentation as synchrony of interface which is web based gains much more importance in this stage.

Today many types of software are available such as Wizzyq™, Adobe® Connect™ providing virtual lesson practicing. These software usually present documents taken from computer with video consisting of teacher image. However, the blackboards used in traditional classrooms and some lesson materials can't be seen in the videos. Despite the fact that the image of classroom or materials used in the lesson is given through video stream, because of the Internet speed, the resolution is quietly low. So while student-interface interaction can be provided in presentation or in digital materials which can be sent through computer, desired interaction isn't good enough in the transformation of traditional classrooms to teaching systems.

It's thought that thanks to synchronous construction of well-prepared e-learning system the interaction stated in prior studies will be enabled and during this interaction the number of faced problems resulted from intensive the Internet will be decreased. Especially it's believed that the

opportunity of easily accessing more detailed image of lesson materials used in traditional classrooms or workshops will affect the success of students positively. As stated by Linn [24], it will be possible for students to ask questions to each other by making interaction among themselves and so it is envisaged that their learning will be easier.

However, some problems can appear in related works because of text based and keyboard communication module. In order to resolve these problems, STR software developed by Kuo et al. [9] is suggested to be used. The future implication for the next works is that this study will be applied with students so it will also be investigated how platform will have an effect on students' academic success and the lessons presented as synchronous with the help of EyA software should be recorded and published as synchronous.

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