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Online etude center

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Abstract

In this paper, we describe a system called Online Etude Center based on the subject, using technology in educational life. The system that we developed is a desktop application that can be used via tablet pc or mobile devices. By this study, it is expected to benefit from technological products so that we could achieve an educational life which is more entertaining and flexible. Through Online Etude Center, we believe in that teachers and students will easily communicate with each other. The application is developed using Microsoft C# as programming language and SQL Server as database. In addition, it can be used in portable devices such as tablet pc (with Windows 7 OS) and mobile devices (with Windows Mobile OS). This study mainly focuses to benefit from the advantages of technology in education and aims increasing the rate of technology usage in education system.

Keywords: Online education, education and technology, online test center, education with portable device, portable education;

1. Introduction

The improvement in technology rapidly increases day by day; nevertheless there is not a considerable reflection of this progress in educational life. This study is based on the question “Why don’t we exploit technology for more effective education?” This question brought us to develop a program called “Online Etude Center”.

Nowadays, Turkish Government and Turkish Ministry of National Education works on a project called as “Fatih”. This project aims to evolve education system by support of technology. Such projects like Fatih are risky to manage, and require large amount of financial source. Therefore, each step of such big projects must be planned carefully so that the project can reach the target. We have a belief that features of Online Etude Center (OEC) could lead the project, Fatih, to shape the outline for development of portable device applications.

This study is organized as follows. The benefits of portable device usage in education will be declared in Section 2. Section 3 will explain OEC architecture in details. This paper will be concluded in Section 4. Section 5 will highlight our future work.

2. Portable Devices in Education

The development of wireless communication has started to change the methodologies of teaching and learning in an effective way. After the invention of portable devices, studying conditions were enhanced substantially. Pencils

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and papers started to be replaced with portable devices. Instead of carrying books, notebooks, pencils separately; a well-designed portable device can make students' lives easier.

Portable devices possess a beneficial feature, which is visualization, gives students a chance to make up their lecture duties in their suitable time. The one who missed his/her class due to any reason has a chance to watch the related record of the lesson with the aid of suitably developed applications. Besides, portable devices offer an opportunity to communicate student and teacher at ease. Sometimes, teachers do not have enough time to deal with the whole questions of students. One of the features of Online Etude Center is to provide saving time, owing to "sending and receiving question" within the modules in the system. When students have difficulties in answering worksheets, s/he can easily send related questions to teachers. As a result, the answer for questions takes shorter time in contrast to traditional education system.

Furthermore, users could send messages to each other whenever they want. Not only student-teacher communication is simplified, but also Online Etude Center enables to improve cooperation among students. Students can share their answers with their classmates. Interactive education which was supported by portable devices possesses a better teaching pedagogy in problem-solving courses in contrast to traditional instructor-based teaching methodologies (Enriquez, A.G., 2009). In DePauw University, a problem solution section was accomplished by using DyKnow system via tablet PCs. Students tried to solve question together, sending answers to each other. 73% of the students was approved that this practice helped them improve their learning abilities. The remaining has some hesitations, but they didn't completely disagree with this idea (Cromack, J., 2008).

The progress in students' learning brings about success eventually. This fact is also mentioned in "Implementing Collaborative Project-Based Learning Using the Tablet PC to Enhance Student Learning in Engineering and Computer Science Courses". They stated in their study that the averages of students were apparently increased as expected (Avery, Z. et. al., 2010). That is why we added a module in OEC so that teachers can monitor the success of student.

By developing OEC application, we aim to provide teachers and students an open education platform. In one side, teachers can simultaneously prepare pop quizzes for a particular class and instantaneously determine which questions will be asked according to the related chapters. In other side, students are able to create a weekly schedule for them.

3. OEC Architecture

In Online Etude Center, there are three different types of users which are management staff, teacher, and student. The system is built with the interactions of these users and each of these user types has different roles in the harmony. All of the activities in the system occur by means of a central server. Users need to connect to the server in order to log into the system to benefit from the data stored in this server. Consequently, the activities can be carried out by the interaction of users with the central server. (Figure 1)



Figure 1. User and OEC server interaction

Management staff can be thought to be the one who decides the limits. In another word, it is the authority that sets the constraints of teachers and students. For a real life example, we can call it as the Turkish Ministry of National Education.

First of all, management staff is responsible for creating lectures into the system for each semester. Since education system changes, so does the lectures. All activities are depended on the semester. In addition, it is management staff's task to define chapters of lectures. It is proved by experiment that education with visual techniques is more effective on students. (Stickel, M. & Hum, S.V., 2008) Therefore, videos related with chapters are uploaded by management staff.

Online Etude Center involves e-books concerning lectures for students to follow. Adding e-book to the system is required for technology based education systems. Therefore, management staff takes care of adding book into the system.

It is indispensable to have quiz questions in OEC. As a result, we designed a question pool to save questions. The questions are added by management staff. The questions in question pool are used by teachers while preparing pop quizzes.

Both teachers and students must have user account in order to log into the system. Another duty of management staff is to define user account for teachers and students. The lack of communication is one common problem in people's lives. In order to solve this problem, there exists an announcement system in OEC. The announcements that are sent to users are made by management staff.

The application for management staff runs on any computer having Microsoft Windows based operating system. Since there is no need to make frequently changes in the system, we did not need to make a portable device application for management staff. On the contrary to management staff, teachers and students can use the system through portable devices like tablet pc and mobile phone. In order to log into the system, portable devices must have an internet connection.

Teachers and students are the most important users in Online Etude Center because all of the interactions with the system are performed by them. To begin with, it is basically aimed to solve their communication problems via the application. Students can practice chapters by watching videos, reading books, solving questions. While students are answering questions, they are able to ask the questions about requested questions which they cannot answer to their teachers. Teachers reply the questions sent by students at the earliest available time so that feedback time decreases. Besides that, teachers and students can send messages to stay in contact with each other easily.

In order to see the improvement of students, Online Etude Center includes general test. Figure 2 indicates the main menu of OEC student interface. In this screen, there is a graph showing the success of students from the beginning of semester. What's more, there is an announcement part to follow the news in the corporation.

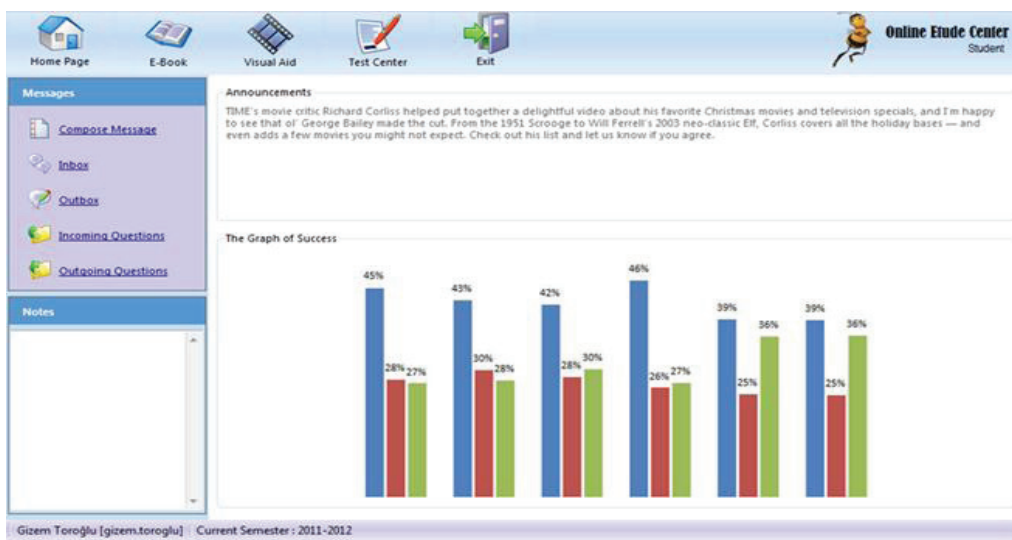


Figure 2. The main menu of OEC student interface

It is important to correctly use time while answering questions. In order to evolve this ability, there is a test part in Online Etude Center. Solving test with portable devices is a common feature in applications like OEC. We additionally designed a facility for students to allow them ask questions to teachers. The reason why we created this feature is to save time instead of arranging meetings with teachers. Figure 3 shows the problem solving interface for students.

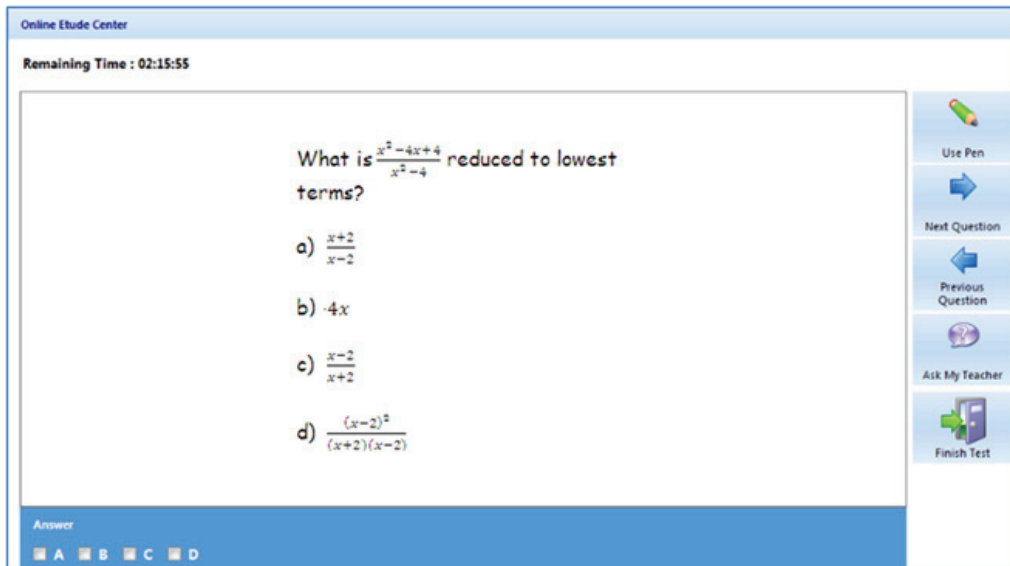


Figure 3. Answering the OEC quiz questions

Questions are shown in the center of problem solving interface. For the questions which require calculations, there is a pen tool under the “Use Pen” button. Students do not have difficulty in writing on tablet pc by means of pen tool. Pen tool can be used as if writing on a paper. Another feature of Online Etude Center is that students can share their answers with others.

Another difference of OEC from such other applications is that teachers can see the subjects that students are good at or bad at. By looking at students’ knowledge about subject, teachers can schedule tasks for students. While preparing this schedule, teachers can advise students to watch video, read book, or solve worksheets about chapters so that the missing parts are fulfilled. Figure 4 shows the design for preparing schedule for students. Similarly, “Making a Schedule” module was designed for students who would like to arrange a weekly schedule for themselves.

4. Conclusion

This paper discussed our application based on the subject using portable devices in education. The application, Online Etude Center, has become a platform which students and teachers can meet in it for their demands without going to school. Although such systems like Online Etude Center are not widely used in the world, there is no doubt that regular tasks in educational life are going to be performed via such applications. Such a project like Online Etude Center has started to be developed by Turkish authorities. The project, Fatih, which is tablet pc based, has parallel targets as OEC does. Online Etude Center has the necessary features for both students and teachers to interact with each other. Therefore, we believed that Online Etude Center can be starting point for the developers of Fatih.

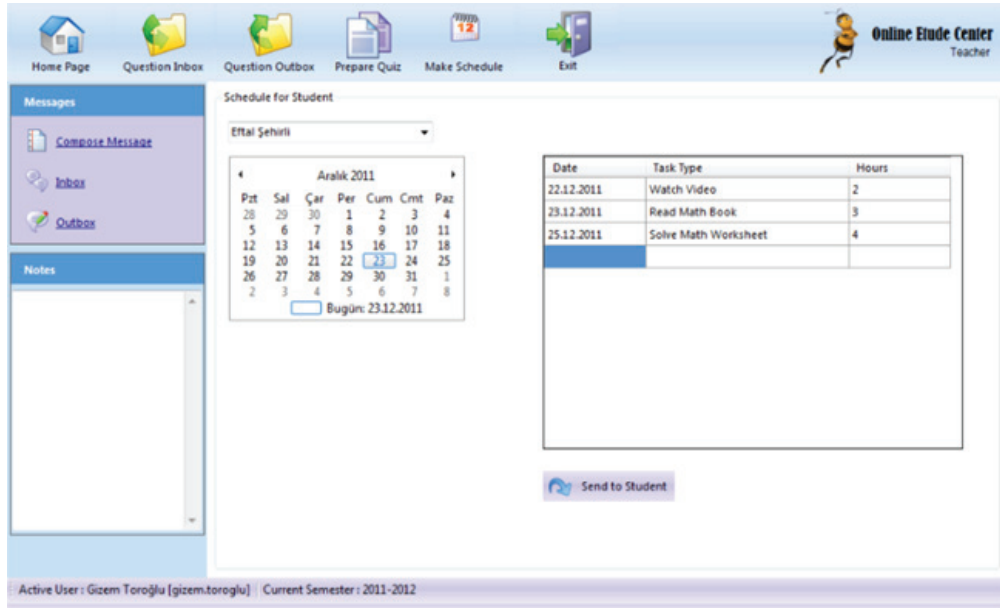


Figure 4. The interface of “Making a Schedule” module

5. Future Work

Online Etude Center was designed for a training center in Turkey. The requirements of the training center were enabled us to develop the features that explained in this paper. However, there is no restriction to increase the specifications of OEC. Online Etude Center will be continued to update according to the recently emerged demands. We also thought about the requests which could be done from foreign corporations, a study concerning English version of OEC is going to be evolved.

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