WAYS OF APPLICATION OF DIFFERENT INFORMATION TECHNOLOGIES IN EDUCATION ON THE EXAMPLE OF MATHEMATICAL EMERGENCY E-SERVICES

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Abstract: Rapid development of Information and Communication Technologies poses many questions about the future of education. Experts have been analysing the role of the paper course books, examinations, schools and the traditional teachers in the educational processes and they are wondering about their further roles on the threshold of these considerable changes in education. A lot has been changed in a way knowledge is shared and delivered to young people. This has already been confirmed by the results and findings of the Mathematical Emergency E-Services project, which has been carried out over a year now by the Technical University of Lodz. The first part of the article reveals results of the survey conducted among pupils involved in the project, whereas its second part presents basic concepts of the new vision on how educational processes can be supported by ICT in the light of the research in question.

Keywords: e-services, e-learning

1. INTRODUCTION

One can find plenty of websites offering payable services for solution tasks of mathematics. Even more often students make use of this dubious form of assistance. They receive ready-made solutions without understanding them. The former Polish minister of Education prof Zbigniew Maciniak had an idea of introducing “state tutoring” that should solve the problem of private lessons in primary schools for class range IV-VI [1]. State tutoring includes obligatory classes of two main subject: Polish and Maths.

By this way, the government wanted to equalize the chances of education and attenuate the common problem of private lessons.

Unfortunately, parents send their children for private lessons, not trusting, that the school provides appropriate education meeting their needs. The problem of private lessons is also growing in high and secondary schools, in particular with regard to mathematics and foreign languages [3, 4].
Being employees of Technical University of Lodz, we have faced this problem since 2009. From that time we have been working over the project “Mathematical Emergency E-services” (ME), which is entirely financed from EU funds.

Its goal is providing a real-time, immediate assistance in the field of mathematics for students of secondary schools. Every week from Sunday to Thursday, from 5 PM to 10 PM four teachers provide assistance using a special computer system. The student, who has a problem with solution of his homework in mathematics or does not understand some issues, may connect to the teacher using Internet. The student will not get the ready solution, he must actively participate the discussion with the teacher.

30 schools in Lodz province are covered by this program, from which more than 1000 students can get the assistance. The project will end in September, 2011.

In this work we present and discuss the results of the survey conducted after one year of launching the project. We try to outline the new vision of assistance to students using new technologies.

2. DESCRIPTION OF THE PLATFORM

For the purpose of the project, the LearnWay ver. 2.4 has been purchased. This system is equipped with functionality required by ME project. [2]

In Figure 1 a screenshot of an exemplary conversation between a student and a teacher is presented.

![Figure 1. LearnWay platform for ME](image-url)
During the conversation, the teacher may upload some predefined files (in this example, an image of the pyramid).

This library (images of geometrical figures, mathematical formulae) has been prepared especially for the ME project. The task of the teacher is directing the student to solve the task. The student may complete the drawing or the formula and conduct the discussion with aid of voice connection or the chat.

It is important, that teachers do not relieve students, but rather help them.

The description and analysis of several consultations may be found in [5].

3. THE SURVEY

The survey have been conducted after one year of running the ME project. The forms have been sent to schools, and filled only by students, who participated in the project. 615 of sheets which is almost 100% were given back. About 2 – 3% of respondents did not answer individual questions. In Figures below, results of the survey are presented.

Initially, students were asked, how they rate the idea of ME (Figure 2). We can observe a high acceptance ratio; 44 per cent encourage the idea, however, more than 20% prefer traditional forms of private lessons.

![Figure 2: Survey question 1: How do you rate the idea of mathematical e-emergency?](image)

E-learning in Poland is still poorly prevalent. The survey proved, that only about 10 per cent of respondents used this form of education in the past (Figure 3).
Young people need help in solving tasks in mathematics and looking for the assistance. Only 7% said, that can cope alone with this problem (Figure 4).

The students asked, how do they rate the level of consultation offered by ME, in most were satisfied (Figure 5).
The survey showed that about 66 per cent of the respondents would recommend this form of education to their friends (Figure 6). There is a group of about 20%, which is reluctant.

Definitely, the students can see that this form of education broadens their skills. As many as 66% of students want in the future use of this form of learning (Figures 7 and 8).
Figure 7: Survey question 6: Does in your opinion using the e-emergency complement and extend your knowledge and skills in mathematics?

Figure 8: Survey question 7: Will you prefer to learn in the future using such a platform?

29% of students believe, that this form of education can reduce the need of private lessons, others express themselves positively, but are not quite convinced.

Figure 9: Survey question 8: Will the e-emergency reduce the number of students in private lessons?
CONCLUSION

Mathematical Emergency E-service project has been repeatedly described in the media, especially in nationwide (Gazeta Wyborcza, Przekraj) and local press (Dziennik Łódzki, Express). It was also mentioned on the radio (ex. Radio Zet).

Inspecting the survey may lead to conclusion, that the ME project has provoked a great interest among students in secondary schools. The analysis of individual answers clearly indicates, that this trend in education is advisable. It seems to us, that in the future the project should be extended to nationwide mathematical emergency service covering other subjects. The idea may be also extended to all levels of education. Such projects should be funded systemically (by The Ministry of Education).

REFERENCES