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The Use of Mobile Devices in Education

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Abstract

The use of mobile technology increases around the world and therefore is growing interest in its use in education. Mobile technologies are dramatically influencing how and when students learn. Technology plays an increasingly important role in education. This paper deals with the possibilities of mobile technology in the education and it shows how teachers and students readiness to work with mobile devices. Aid questionnaires were verified what relation to mobile technologies have teachers and students. It was also verified how teachers use their mobile devices in preparation for learning and teaching. Research methods were used questionnaires, interviews and a pedagogical experiment. Results of surveys and experiments show that mobile devices can enhance teaching, but also brings the new difficulties and problems.

Keywords: education, mobile device, mobile technology, research, questionnaire

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1. Introduction

Mobile technology is currently developing very rapidly and are involved in all aspects of life. Devices such as smart phones, tablets, notebooks, convertible devices, smart watches, and other readers, uses a large portion of the population, including children. Mobile devices represent a major breakthrough in the use of computers and require a new approach. Greater emphasis is placed on the use of cloud services and data synchronization with other devices. Previously, users had a tendency to have all the data on the internal storage of the computer. When working with mobile devices, it is preferable to use mainly cloud services and devices are widely becoming only kind of terminal that accesses the individual data and services. The user was a few years ago fundamentally limited to a specific device and most of the data formats to be able to view and edit only on desktops or laptops. Current smart phones, tablets and other mobile devices allow you to work with documents of all formats, access, and edit any data. All data can be synchronized and the user has access to their information from any device. Users can check their tasks and appointments, view documents requested, work with multimedia data anytime and anywhere. Many mobile devices are becoming fashionable and trying to own the latest tablet or smart phone is noticeable not only among adults but also children. In education and training also addresses the development of mobile computing. It is developed by the amount of mobile educational software, increases the effort and the pressure on the classification of these modern means of teaching. Teachers are experimenting with the use of mobile devices in the classroom. Increasingly frequent are noticeable efforts across the board to introduce mobile devices into education (Vaughan, 2013; Baran, 2014).

2. The survey on the use of mobile devices

We did a survey of relationships between teachers and pupils to mobile devices. As a basic method was used questionnaire. The questionnaire was completed by 39 teachers. 15 of them teachers teach Informatics and Computing. Other respondents of the research were 138 students aged 11 to 19 years. Among teachers, 56% were women and 44% men. The average age of teachers is 40 years; the average age of students was 15 years. Among the students, 67% of boys and 33% girls.

2.1 The methodology

Teachers filled out a paper version of the questionnaire, which contained 15 questions. The questionnaire contained content items, but also functional items, specifically items contact and control. Most of the items of the questionnaire were closed or semi-closed structured entries. Questionnaires were sent out, but the individual respondents were personally sought to fill, to ensure a full return. Pupils received an electronic questionnaire with ten items. The evaluation of the data obtained were used statistical methods. For analysis of the results in each item was measured as having detected data variability. We used a coefficient of variation. To interpret the results of the second stage classification was done chi-square test (Chráska, 2007). For evaluating the results were used MS Excel and statistical software Wizard for the operating system on Mac OS X and statistical software Statistics Visualizer for iPad.

2.2 The result of research

Teachers and pupils were asked whether they think that mobile technology can help them in the classroom. 85% of teachers believe that mobile technology can help them prepare for courses in teaching itself. The opposite holds only 5%. 10% can not assess it. Pupils have similar results: 86% of students believe that mobile devices can help them in the classroom, 9% think the opposite and 4% can not assess it.

The following graphs show some of the survey results. Teachers are divided into two groups. The group of teachers of informatics and the group of teachers of other courses.

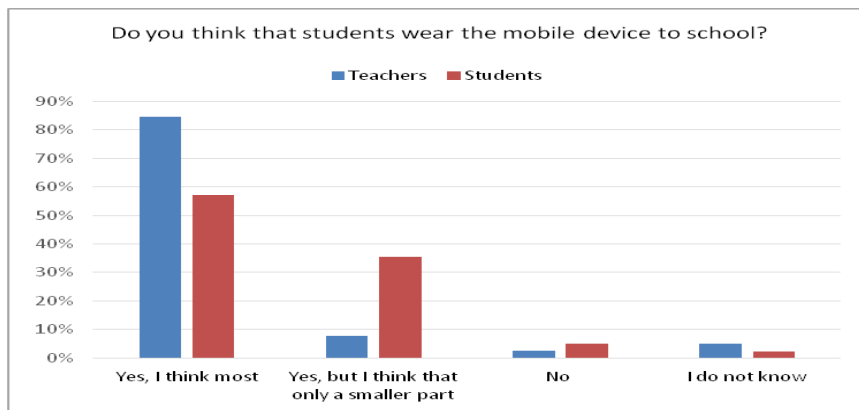


Fig. 1. Do you think that students wear the mobile device to school?

The first chart shows that both students and teachers believe that the large number of pupils wear the mobile device to school.

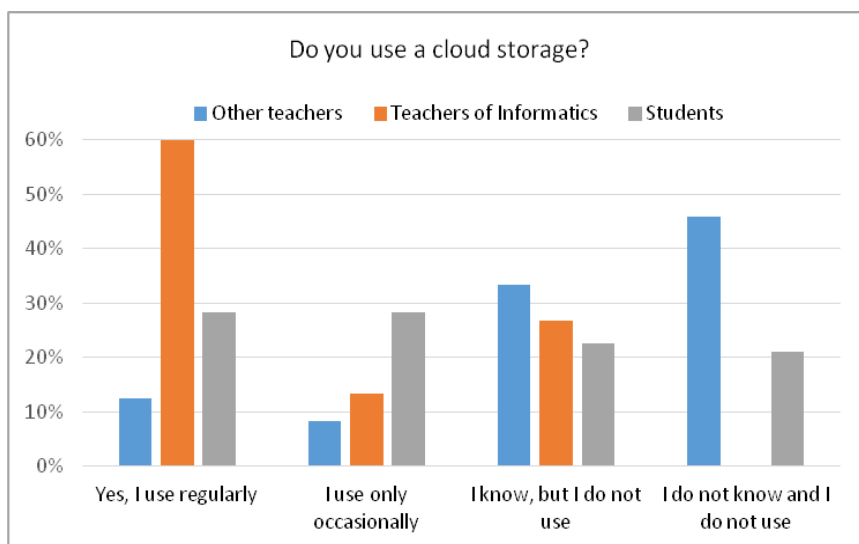


Fig. 2. Do you use a cloud storage?

Teachers of computer science know and use cloud services. These services are very important for a complete and quality use of mobile devices. Many teachers of other subjects do not know or hardly used cloud services. Questioning students are divided almost equally large groups.

Predictably, teachers and pupils use most laptops, tablets and smart phones. Respondents cited as other mobile devices e-book readers. Convertible devices, smart watches and wearables are used on a small scale so far.

The graph in Figure number four shows that teachers of informatics use mobile devices in preparation for learning more. They are using the most notebook and tablet. Convertible devices are not yet sufficiently widespread among teachers and for this reason the frequency of their use smaller.

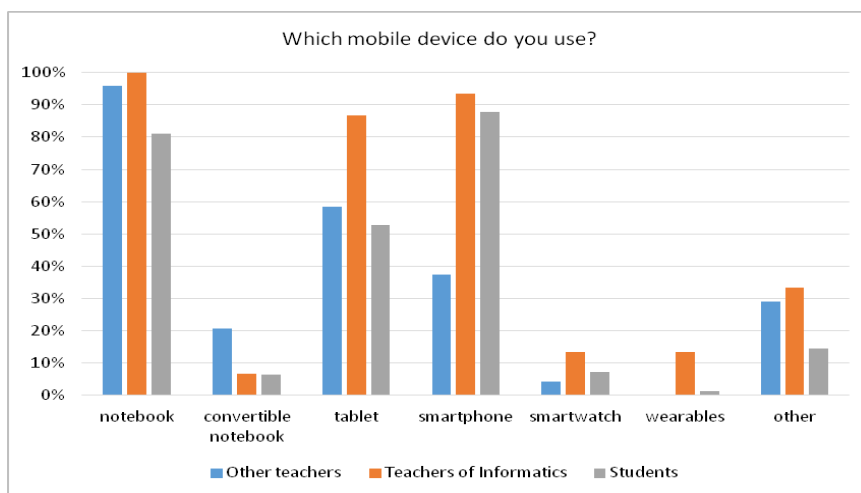


Fig. 3. Which mobile device do you use?

The questionnaire found in what situations and how teachers use mobile devices. These are activities such as the creation of lesson plans, communication with students and their parents, testing and testing, recording marks and students' results presentations in the classroom, working with the information system of schools, acquisition of new information, reading books in electronic format. The results clearly show that computer science teachers are using mobile devices more often and in almost all activities. The most common devices are laptops and tablets. Teachers of other approbation use smart phones to their work rather exceptionally, computer science teachers use more often.

Most of teachers use the notebook. Teachers of Informatics also use the tablet.

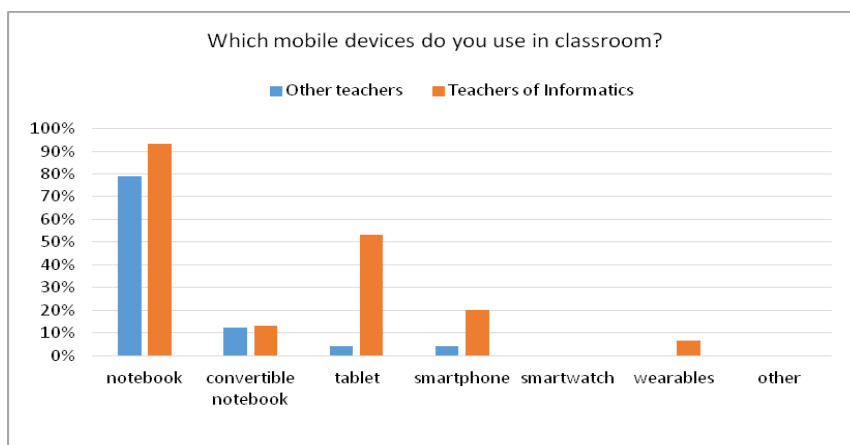


Fig. 4. Which mobile device do you use in classroom?

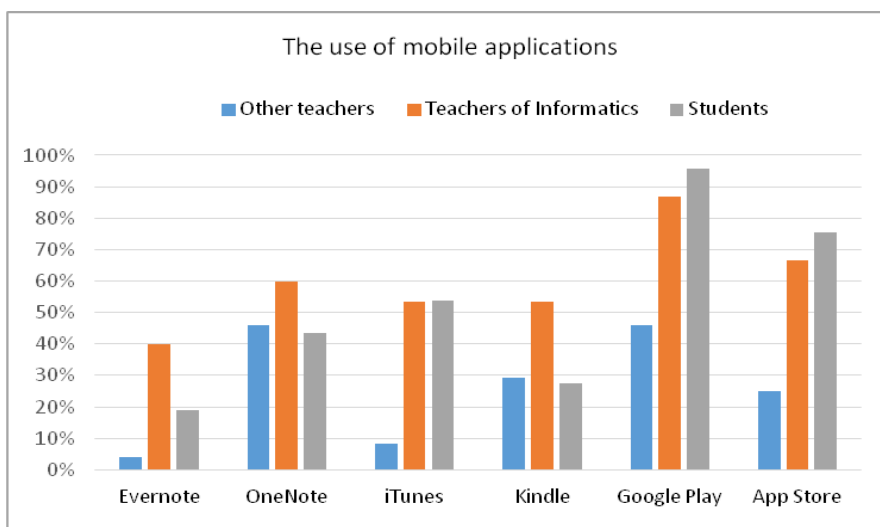


Fig. 5. The use of mobile applications

When determining how teachers and students use specific mobile apps, it was found that computer science teachers and students are familiar with and use more than teachers of other approbation.

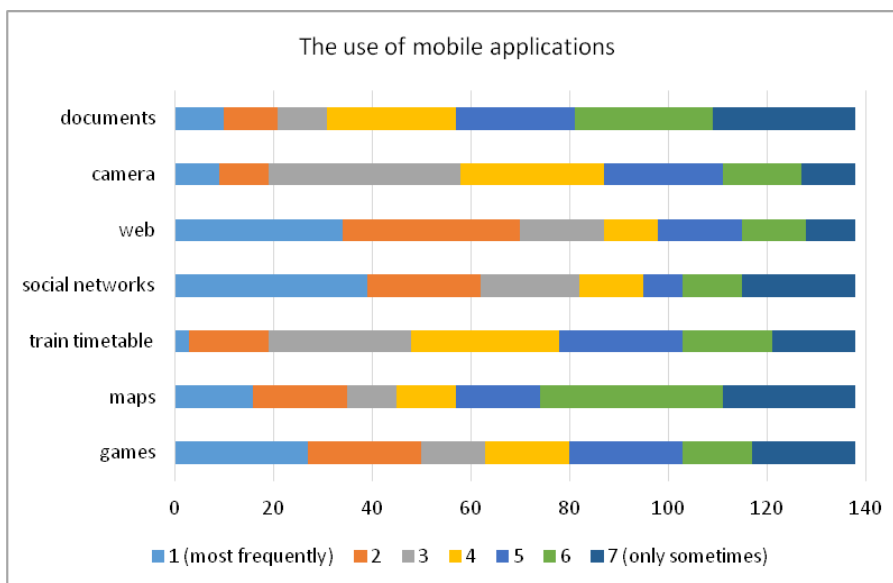


Fig. 6. The use of mobile applications

Pupils on their devices most commonly used mobile applications for social networking, Web browser and mobile games. The graph in Figure number seven and eight shows how students lined up mobile application, depending on how frequently and intensely used. The graph in Figure number eight shows how students use mobile Internet access.

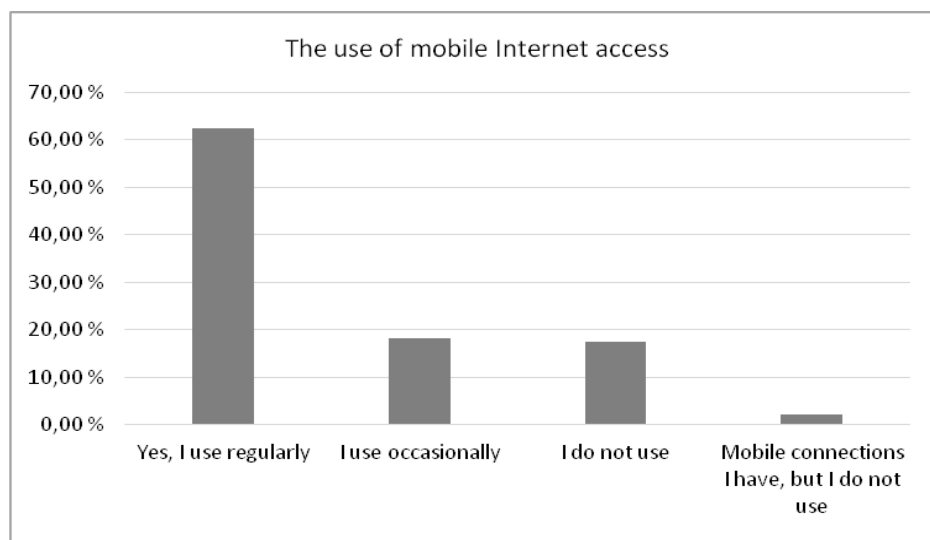


Fig. 7. The use of mobile Internet access

We created several hypotheses:

H1: Teachers of Informatics use mobile computing devices better and more often than teachers at other approbation.

H2: Teachers use mobile devices better than students.

H3: Students use mobile devices for gaming and social networking.

The testing of hypotheses were used statistical methods for analysis of nominal data, specifically the chi-square test. Were first formulated null and alternative hypotheses were calculated expected frequencies and test criterion, which was then compared with a critical value. At a significance level of 5% can be stated veracity hypothesis H1. Conversely H2 hypothesis can not be confirmed. For verification A third hypothesis was found that students use mobile devices for other purposes than just games and access to social networks.

3. Pedagogical experiments

The first experiment was attended by 163 teachers. Teachers should carry out simple tasks for working with cloud services. Based on simple tasks, it was found that only 26% of secondary school teachers and 24% of primary school teachers knew how to use cloud services. Tasks related to work with cloud storage, synchronization and data sharing. The vast majority of participating teachers had no or very little practical experience with the services offered by cloud storage. Teachers usually know very little about the ability to synchronize your data among desktop, portable and mobile devices. They almost did not use these functions.

The second experiment was verified algorithmisation teaching at the gymnasium. For teaching was used by Marco Run! Students in this application compiled algorithm that moves the figure to the designated place. Pupils in the class were divided into two groups. A control group of pupils received worksheet in which the ten rounds in picture form. For each round, students had the task to write a single worksheet commands. The experimental group worked directly with the application Run Marco! on the iPad. All pupils did tests before and after the experiment. Comparison of results of

experimental and control groups shows minimal differences. Students in the control group gained more points for evaluation worksheets (Palečková, 2015).

The third experiment dealt with the possibilities of using interactive e-book that have been created for iPad. The content of interactive e-book and control material in pdf format was the topic of web pages. In experiment involved 84 students ranging in age from 15 to 18 years. Students were divided into control and experimental groups. The control group studied on a desktop computer using a textbook in pdf format. Each student in the experimental group used the iPad. There was an interactive textbook, which was created with IBooks Author. We conducted with two groups of testing before and after the experiment. The control group reported slightly more improvement than the experimental group (Škuta, 2015).

None of the experiments failed unequivocally that the use of tablets significantly improved the quality of teaching. In some parameters even control groups of pupils achieve better results than the experimental groups. Teachers conducting experiments unambiguously confirmed that pupils of experimental groups were more motivated to teach. Due to the fact that the tablets in the surveyed classes in teaching commonly used, students often gave lots of energy to become familiar with the devices. Students sometimes tend to do on a tablet activities other than what was required. Pupils were therefore places less focus and work usually took them longer than students in the control groups. To increase the reliability of experiments would certainly be useful to repeat the experiments. It is necessary that students often worked with the tablet and would not devote so much energy to become familiar with the devices and to become a tablet for pupils conventional teaching means.

4. Conclusion

Mobile computing technologies require users to change their approach to the use of these devices and more work with cloud services and data synchronization among devices. A survey among teachers and pupils showed that mobile devices are widely used and exploited. Teachers other than those qualified informatics is not used and do not know many of the important possibilities of using mobile technology. Our pedagogical experiments confirmed that the use of tablets clearly improved the quality of teaching process.

References

- Baran, E. (2014). Öğretmen Eğitiminde Mobil Öğrenme Araştırması Bir Gözden. *Eğitim Teknolojileri ve Toplum*, 17 (4), 17-32.
- Chraska, M. (2007). *Metody pedagogického vyzkumu*. grada Publishing as.
- Paleckova, Z. (2015). *Vyuziti tablet ve vyuce*. Diplomova prace, Ostravska univerzita v Ostrave,
- Skuta, P. (2015). *Tvorba ucebnich materialu pro iPad*. Diplomova prace, Ostravska univerzita v Ostrave,
- Vaughan, N. & Lawrence, K. (2013). Researching the Role of Mobile Devices in the Collaborative Pre-Service Teacher Training Program. *Canadian Journal of Higher Education*, 43 (3), 56-77.