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TECHNICAL FACULTY
"MIHAJLO PUPIN"
ZRENJANIN**



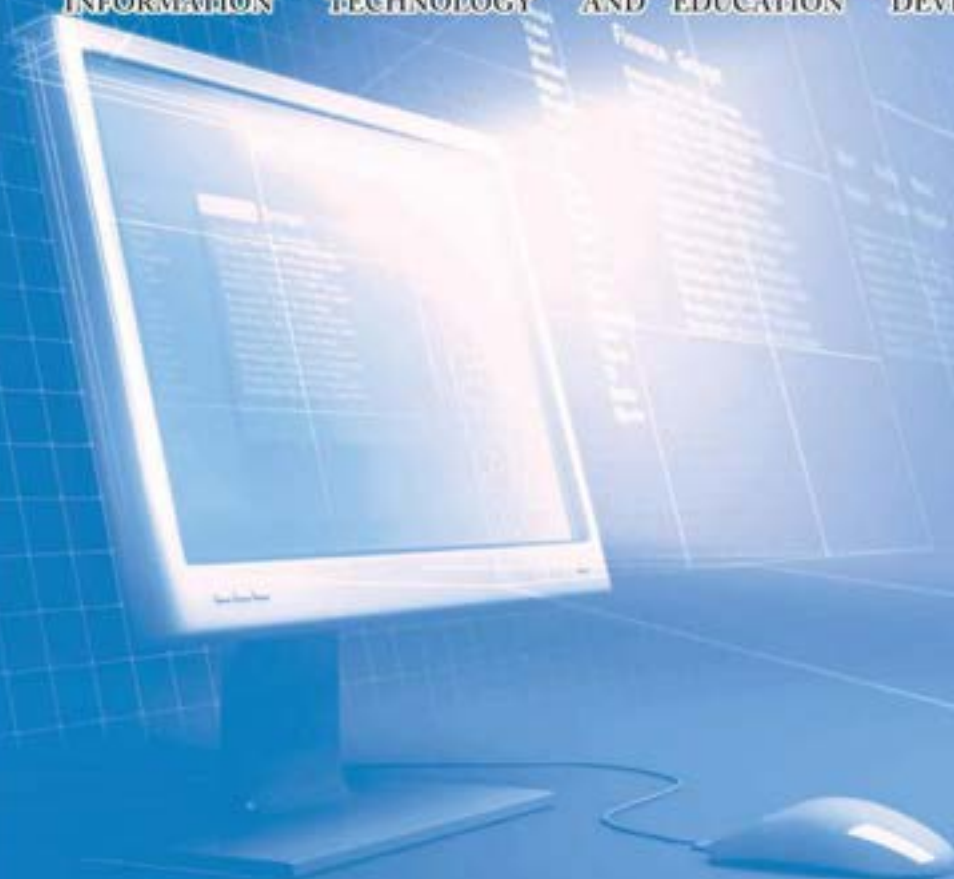
ITROCONFERENCE¹²

INFORMATION TECHNOLOGY AND EDUCATION DEVELOPMENT



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INFORMATION TECHNOLOGY AND EDUCATION DEVELOPMENT



PROCEEDINGS

ZRENJANIN, November 2021



UNIVERSITY OF NOVI SAD
TECHNICAL FACULTY "MIHAJLO PUPIN"
ZRENJANIN
REPUBLIC OF SERBIA



XII INTERNATIONAL CONFERENCE OF
**INFORMATION TECHNOLOGY AND
DEVELOPMENT OF EDUCATION
ITRO 2021**

PROCEEDINGS OF PAPERS



XII MEĐUNARODNA KONFERENCIJA
**INFORMACIONE TEHNOLOGIJE I
RAZVOJ OBRAZOVANJA
ITRO 2021**

ZBORNIK RADOVA

ZRENJANIN, NOVEMBER 2021

Publisher and Organiser of the Conference:

**University of Novi Sad, Technical faculty „Mihajlo Pupin“, Zrenjanin,
Republic of Serbia**

For publisher:

**Dragica Radosav, Ph. D, Professor,
Dean of the Technical faculty „Mihajlo Pupin“, Zrenjanin, Republic of Serbia**

Editor in Cheaf - President of OC ITRO 2021:

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Proceedings editor:

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Technical design:

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Circulation: **50**

ISBN: 978-86-7672-351-5

CIP - Каталогизacija y publikaciji
Biblioteka Maticе српске, Нови Сад

37.01:004(082)(0.034.2)

37.02(082)(0.034.2)

INTERNATIONAL Conference of Information Technology and Development of Education
ITRO (12 ; 2021 ; Zrenjanin)

Proceedings of papers [Elektronski izvor] / XII International Conference of Information
Technology and Development of Education ITRO 2021 = Zbornik radova / XII
međunarodna konferencija Informacione tehnologije i razvoj obrazovanja ITRO 2021,
Zrenjanin, November 2021. - Zrenjanin : Technical Faculty "Mihajlo Pupin", 2022. - 1
elektronski optički disk (CD-ROM) : tekst, slika ; 12 cm

Sistemske zahtevi: Nisu navedeni. - Nasl. sa naslovnog ekrana. - Elektronska publikacija u
formatu pdf opsega IX, 238 str. - Tiraž 50. - Bibliografija uz svaki rad

ISBN 978-86-7672-351-5

a) Информационе технологије -- Образовање -- Зборници б) Образовна технологија --
Зборници

COBISS.SR-ID 66049033

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With this publication, the CD with all papers from the International Conference on Information Technology and Development of Education, ITRO 2020 is also published.

INTRODUCTION

This Proceedings of papers consists from full papers from the International conference "Information technology and development of education" - ITRO 2021, that was held at the Technical Faculty "Mihajlo Pupin" in Zrenjanin on November 26th 2021.

The International conference on Information technology and development of education has had a goal to contribute to the development of education in Serbia and the Region, as well as, to gather experts from natural and technical sciences' teaching fields.

The expected scientific-skilled analysis of the accomplishment in the field of the contemporary information and communication technologies, as well as analysis of state, needs and tendencies in education all around the world and in our country has been realized.

The authors and the participants of the Conference have dealt with the following thematic areas:

- Education in crisis situations
- Educational challenges
- Theoretic and methodology questions of contemporary pedagogy
- Digital didactics of media
- Modern communication in teaching
- Curriculum of contemporary teaching
- E-learning
- Education management
- Methodic questions of natural and technical sciences subject teaching
- Information and communication technologies

All submitted papers have been reviewed by at least two independent members of the Science Committee. There were total of 94 authors that took part at the Conference from 12 countries, 3 continents: 52 from the Republic of Serbia and 42 from foreign countries such as: Macedonia, Bosnia and Herzegovina, Hungary, Slovakia, India, Bulgaria, Rumania, Albania, USA, Canada, Malaysia. They were presented 49 scientific papers.

The papers presented at the Conference and published in Proceedings can be useful for teachers while learning and teaching in the fields of informatics, technics and other teaching subjects and activities. Contribution to the science and teaching development in this Region and wider has been achieved in this way.

The ITRO Organizing Committee would like to thank the authors of papers, reviewers and participants in the Conference who have contributed to its tradition and successful realization.

Chairman of the Organizing Committee
Snežana Jokić, Ph.D, Ass. Professor

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Mobile Teaching and Learning – Benefits, Perspective and Challenges

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Abstract – Rapid development of information and communication technology affects all areas of our life, including education and learning environment. We live in a world where people are addicted to technology. Everyday life cannot be imagined without use of mobile phones, computers, laptops, and tablets. Despite the already existing e-learning, mobile teaching and learning is becoming more and more used. Mobile teaching is about planning and executing learning through mobile devices. This way of learning can influence both the professors (lecturers), and students. This learning is also made possible by the Internet which helps to create modern methods when integrated with the pedagogical instruction. The aim of this study is to review the mobile-based teaching and learning in high education.

I. INTRODUCTION

Today information and communication technology are almost everywhere, so also in education. Students learn with use of computers and technology and with their help they develop new skills daily. A new generation of educational tools have been introduced by using mobile devices. Mobile devices include any portable and ease of use, connected technology, such as basic mobile phones, smartphones, e-readers, netbooks, tablets, iPads, and computers [2]. They give quick and easy access to a wealth of resources. Mobile devices lead to new educational model called mobile teaching and learning [7].

Mobile learning is a need, not a want. It is believed that by allowing students to use mobile devices in the classroom, motivation to learn and to achieve increases [3]. Students want information and communication technologies to enhance their university experience, as well as to provide experiences that are transferable to all aspects of their lives [4]. Students want to keep up with new technologies to have a better and more successful career.

Mobile teaching is about planning and executing learning through mobile devices together with

Internet (Wi-Fi or static). The growing popularity of the term ‘mobile learning’ can influence both the professors (lecturers), and students: mainly students who carry the mobile devices and move around with them, whilst the term ‘mobile teaching’ is hardly used at all. Our starting point and our focus are the emphasis on learning, but our attitude towards mobile teaching is to redefine it as facilitation and support of mobile learning.

The purpose of this study is to look at the benefits and perspective of mobile devices in education, and into the challenges to the universities, professors, and students in its implementation.

II. BENEFITS, PERSPECTIVE AND CHALLENGES OF MOBILE DEVICES IN EDUCATION

Professors and students have positive and negative thoughts about using mobile devices at the same time. Professors are more afraid about using new technologies and methods in learning unlike student. They think that the method good for student - they don’t need books, notes, only device; they worry about student health - using devices maybe affect their eyes, head (headache); they are afraid about losing traditional way of learning with books, classrooms, chalk, table, and the most important students.

According to professors, mobile devices will positively influence on students’ motivation, inspiration, desire to learn more, communication, teamwork, collaboration, and ability to research, make homework’s and projects. But, there are also some challenges they must face up, like:

- there are privacy and safety issues,
- distraction is also one big challenge for professors,

- there is the opinion that students will use the devices for communication with friends and for playing games, and not for useful things,
- management in educational institutions (universities) must take responsibility to block certain applications or websites; and professors and teaching assistant need to move around the class to control and monitor the use of such devices by students,
- not all students have access to modern technology (some families are poor, and some students live in rural environment),
- Some students find it difficult to write lengthy text responses on the device due to lack of keyboards. Use of separate keyboards debilitate better power and reduce portability,
- there is no access to variety digital books, universities should provide students more options,
- reading a large amount of text on the small screen of mobile devices is difficult and may tire and damage the eyes,
- the loss is quite big when gadgets are dropped or misplaced, and there is also possibility of theft of the devices at faculties or other places where the device is used,
- not all students are competent in the use of mobile devices, and they might be frustrated and might not want to explore the capabilities,
- parents and professors are concerned about the damage,
- parents do not trust that their children will be responsible in use of mobile devices and felt possible danger.

Professors know that with trainings, workshops, and continuous work they will overcome the challenges of mobile devices on learning and teaching [1]. They also know that students will adapt and will accept this type of learning faster compared to them.

For use of mobile devices for teaching and learning at universities as high educational institutions internet connectivity with a proxy server is required. At the same time, management of the institution must restrict internet access to avoid inappropriate use. The internet connection must be with account for every student with their own username and password. Universities also must consider adequacy of wireless network required for portability of the mobile devices.

Mobile devices are important to us because they allow us to collaborate, communicate, access information, construct new information, connect to others..., as shown in Figure 1 [4]. They're incredibly affordable. These devices hold great potential for transforming learning. Some additional reasons [4], [5], [8] for using mobile devices in the classroom when it comes to teaching design and infrastructure are (Figure 2):

- Mobility: offer learning on the go, tools for communication away from the classroom, several classroom activities through Internet tools while they cannot physically attend the classroom,
- Versatility: multitasking (tools for studying online, taking notes, attending real-time classroom activities, MS Office tool for working with documents, tools for image editing), speeding learning process,
- Noise –free learning environment: an iPad and smartphone provide touch screen option (versus computer because with computer we used keypads and mouses),
- Interactivity: learning through audio/video mediums, learn in an interactive way using visual elements such as charts, graphs, and images
- Flexibility: adaptive learning environment using various applications,
- Social media networking: communication through social-media websites like Facebook and Twitter. These sites allow students to interact with their colleges, to share knowledge, news, and videos, to get answers for any task and questions from their professors and older university colleagues.

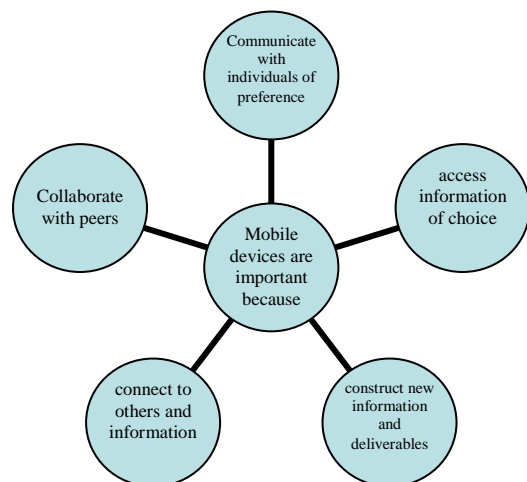


Figure 1 Why mobile devices are important [4]

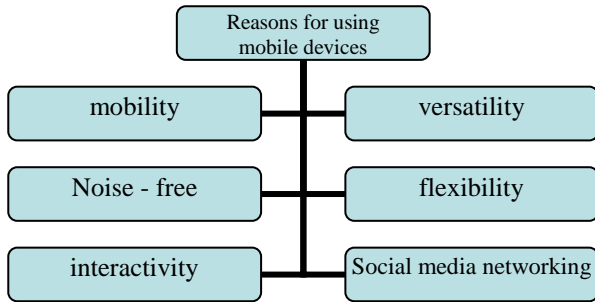


Figure 2 Reasons for using mobile devices [5]

Other reasons why we must use mobile devices in every classroom in high education and what benefits we have, are given below [6]:

- Google for research, anywhere and every time,
- Application with adaptive learning algorithms,
- Application for reading,
- Access to virtual libraries, museums, networks,
- Microsoft Teams platform for teaching,
- Game based learning,
- Project based learning,
- File sharing can be done fast and without any problems,
- Ease for transport,
- Students can create their own workflows,
- Students can plan how to spend their time as they want and prefer,
- Students can have choice in terms of apps, platforms, social channels, assessment style, and so on,
- Using YouTube as most popular media channel,
- Digital literacy is as important as non-digital literacy,
- Headphones, earbuds, and other related peripherals are becoming increasingly common-and useful,
- Can function as a productivity hub for learning–reminders, to-do lists, calendar updates, social messaging, emails, etc.,

- Can be used to take a real time quiz and to give professors data from quick assessments,
- Can be used as calculator,
- Will release the professors,
- Professors can collect data easy.

There was given some of the most important reasons why we must use mobile devices in every classroom, but there are more. More European countries have introduced this kind of learning, so we are not far away. We hope as an institution that we will integrate mobile learning and we will follow the new trends around the world.

III. CONCLUSION

From the paper we can see that the benefits about using mobile devices overshadow the challenges. Professors hope that this type of learning will become more widespread and will arouse students' desire to stand out in learning in front of their peers and to strive to advance in life and career. The goal of every student and human is to be successful and leave something behind.

Our future goal is to conduct research within our university, as well as with our neighbors in Zrenjanin to see how far our achievements are and whether there are aspirations to progress.

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