



**UNIVERSITY OF NOVI SAD
TECHNICAL FACULTY
"MIHAJLO PUPIN"
ZRENJANIN**



ITROCONFERENCE¹⁶

INFORMATION TECHNOLOGY AND EDUCATION DEVELOPMENT



ZRENJANIN, May 14, 2026

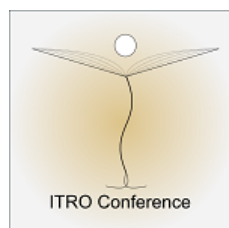


UNIVERSITY OF NOVI SAD
TECHNICAL FACULTY "MIHAJLO PUPIN"
ZRENJANIN
REPUBLIC OF SERBIA



XVI INTERNATIONAL CONFERENCE OF
**INFORMATION TECHNOLOGY AND
DEVELOPMENT OF EDUCATION**
ITRO 2026

PROCEEDINGS OF PAPERS



ZRENJANIN, MAY 14, 2026

Publisher and Organiser of the Conference:

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

For publisher:

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Circulation: **50**

ISBN: 978-86-7672-397-3

CIP - Каталогизacija y yбликацији
Библиотеке Матице српске, Нови Сад

37.01:004(082)(0.034.4)

37.02(082)(0.034.4)

INTERNATIONAL Conference on Information Technology and Development of Education ITRO
(16 ; 2026 ; Zrenjanin)

Proceedings of papers [Elektronski izvor] / XVI International Conference on Information
Technology and Development of Education ITRO 2026, Zrenjanin, May 14, 2026 ; [editor of
proceedings Katarina Vignjević]. - Zrenjanin : Technical Faculty "Mihajlo Pupin", 2026. - 1
elektronski optički disk (CD-ROM) : tekst, ilustr. ; 12 cm

Nasl. sa naslovnog ekrana. - El. publikacija u formatu pdf opsega XII, 304 str. - Tiraž 50. -
Bibliografija uz svaki rad.

ISBN 978-86-7672-397-3

a) Информациона технологија -- Образовање -- Зборници b) Образовна технологија --
Зборници

COBISS.SR-ID 202065929

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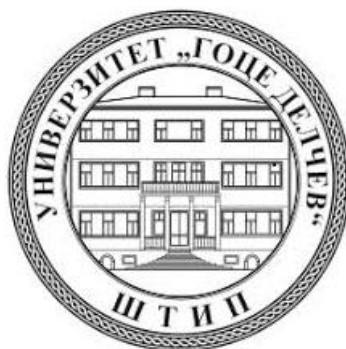


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The Proceedings have been published in a digital format on the Faculty web site.

INTRODUCTION

Technical Faculty “Mihajlo Pupin” in Zrenjanin, University of Novi Sad, Republic of Serbia, is proud to organize the XVI International Scientific Professional Conference “Information Technologies and Development of Education 2026” (ITRO 2026). The Conference is held on May 14th, 2026, at the Technical Faculty “Mihajlo Pupin” in Zrenjanin, Serbia.

The ITRO 2026 conference is established to bridge the gap between scientific research, professional practice, and education. With a long-standing tradition spanning sixteen years, the conference serves as a valuable platform for tracking the continuous evolution of education, particularly when viewed through the perspective of information and communication technologies. Its thematic core focuses primarily on the teaching process as the foundational cornerstone of the modern information society. Current global trends closely align with UNESCO's ongoing efforts to enhance this field, addressing the evolving demands of life and work in the 21st century. It is essential for competent professionals, researchers, and educators to assess the current state of education, identify underlying challenges, and outline future perspectives, while recognizing its profound impact on the development of society as a whole.

While the central pillar of the conference remains the model of dual education as a vehicle for building a strong foundation for industrial growth, recent global dynamics have highlighted a critical, overarching shift in pedagogical reality. Consequently, the primary focus and dominant theme of this year's conference is: AI in Education - Advantage, Problem or Something in Between.

The integration of Artificial Intelligence as a central theme is both deliberate and inevitable. As AI technologies rapidly reshape every aspect of professional and daily life, education stands at a historic crossroads. We are no longer merely discussing new digital tools, but a fundamental paradigm shift in how knowledge is acquired, processed, and evaluated. By examining whether AI acts as an advantage, a challenge, or a complex space in between, this Proceedings volume aims to provide a balanced, scientifically grounded perspective. It explores how intelligent systems can personalize learning, support educators, and optimize educational frameworks, while simultaneously addressing critical questions regarding ethics, data privacy, and the preservation of authentic human critical thinking.

The conference brings together university professors, researchers, directors of grammar and secondary vocational schools, members of the wider academic community, and other professionals dedicated to driving educational innovation forward. To capture the full scope of these contemporary educational challenges, the conference covers a diverse range of thematic fields, including:

- Digitalization of education
- Education in crisis situations
- Contemporary educational challenges
- Theoretical and methodological issues in modern pedagogy
- Digital didactics and media education
- Modern communication strategies in teaching
- Curriculum development for contemporary education
- E-learning advancements and trends
- Educational management practices
- Methodological approaches to teaching natural and technical sciences
- The integration of information and communication technologies (ICT) in education

- The concept and implementation of dual education
- Development and application of interactive e-books

Demonstrating strong international interest and geographical diversity, a total of 110 authors from 11 countries and 2 continents contributed to the conference. This includes 75 authors from the Republic of Serbia and international authors representing countries such as North Macedonia, Bulgaria, Slovakia, Hungary, India, Bosnia and Herzegovina, Croatia, Kyrgyzstan, United Kingdom and Romania.

This volume of the Proceedings contains 44 peer-reviewed papers, published entirely in the English language. We firmly believe that the research presented herein will offer valuable insights, spark meaningful dialogue, and contribute significantly to shaping the future of education in the AI era.

Chairman of the Organizing Committee

Dragana Glušac, Ph.D, Professor

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Students' opinions on the impact of AI on their achievements

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Abstract. The popularity of artificial intelligence (AI) in all spheres of society is constantly growing. The use of AI among students is also on the rise. Students use AI to do project assignments, to do their homework, practice for exams, learn the necessary material, etc. The purpose of this paper is to see opinions of students for whether the application of AI will bring success in achieving better learning results or not. This goal was achieved through an analysis of the results of survey that consists of 15 questions all related to the possibility of using AI, the time of the day it is used, where it is used most, its impact on exam session performance, etc. An interpretation of the results and conclusions drawn from the obtained results are also provided.

Key words and phrases: AI, achievement, knowledge, students.

1 INTRODUCTION

Today's electronic society is all around us. Technology is used in all spheres. All this has contributed to the use of Artificial Intelligence (AI) by people of different ages, different professions, different interests and hobbies. The reasons for using AI among people are different. Some use AI only for professional needs, some only for learning, some for all the questions and ambiguities they have regarding anything, but there are those who do not use it. The tools that are based on AI enable analysis, automation and rapid decision making regarding user requests. Because we live in a dynamic world, the need to get answers quickly has accelerated the use of AI in various fields. AI is used in Information Technology for automated testing in software development, detecting and dealing with cyber attacks, creating chatbots and helpful virtual assistants, etc (Hourani et al., 2019) (Dalal, 2018) (Yang & Evans, 2019) (Gubareva & Lopes, 2020). It is used for processing big data, analyzing it, and drawing conclusions that could help for future decisions. Perhaps we can say that there are also specialized tools for processing big data, but what distinguishes AI-based tools is their speed, flexibility in terms of requirements, and efficiency. This saves a lot of time, increases productivity, and provides more thorough and comprehensive analysis. AI is also used to automate repetitive tasks such as automated production in industry, quality control of finished products, standard administrative processes, etc. These tasks are performed according to a certain logic and using AI can enable faster execution, far better productivity, reducing errors that can occur during manual interaction, and so on. AI is also widely used in education. It is used for personalized learning where lessons are prepared according to the progress and needs of the students (Chiriboga et al., 2025). Adapted learning is very important, because we know that students have different prior knowledge, understandings, and thoughts regarding same content (Gligorea et al., 2023). There are several AI-based platforms that can provide tests, assignments, and video lessons to students based on their progress during the learning (Owan et al., 2023). With this, students are able to more easily master the material and follow the lessons. Nowadays, there are more tutors and virtual assistants that use AI (Papachristou et al., 2026). They can help students throughout their learning with unclear things about the material, questions they have, explaining complex concepts, etc. Learning platforms can also be used for assessment and feedback on written texts, assignments, projects, etc. This is particularly important for students' self-evaluation of acquired knowledge and skills. In this way, they can see what they learned well and for what they need to pay more attention to. This helps students be prepared for the exams and be able to independently

assess their progress. AI can also help students quickly find literature and learning materials. It can summarize views and opinions from multiple scientific articles and books. This is particularly useful for students and young researchers to review current research in a particular area and thus continue the research in an appropriate direction. Here, attention must be paid to the reliability of the opinions and the conclusions drawn in the final phase when the results will be summarized. All of this confirms the enormous potential for using AI in the learning process.

The purpose of this paper is to examine students' opinions about the impact of AI on their achievements. To accomplish the goal of this paper, a survey of students was conducted to see how many of them use AI and how its use affects the learning outcomes. The results of the survey give us information of students' opinion of how AI helps in dealing with new challenges when mastering newly learned material. The students' opinions will be supported and confirmed by a detailed analysis of the impact of AI on student achievement which will be made in the future in a much larger study conducted through testing before and after learning with AI. This research is just the beginning of the overall idea that needs to be realized in the future.

2 LITERATURE REVIEW

Research related to AI is done before as (Saliu & Ramadani, 2024) in their paper collected some data from students from Southeast European University in Tetovo to see for what purposes in academia they use AI. (Gašić et al., 2024) present the current implementations of AI in education, the technologies enabling its application and the experiments conducted in educational environments. The focus is on adaptive systems, virtual tutors and learning analytics, which contribute to improve the educational process. AI offers opportunities to tailor content based on student progress and learning styles (Holmes et al., 2019). Anyway, there are challenges in the application of AI in education, including ethical concerns, security, way of usage, privacy, etc. Further research is needed for adaptation of AI systems in various educational environments and cultures (Aoun, 2017). (Brтка et al. 2023) in their paper explore the impact of AI on online education, highlighting its ability to personalize the learning, automate teacher tasks and enhance student engagement. Authors predict significant benefits from the application of AI in educational environments, such as customized assessments and increased interaction. Additionally, the paper compares the evaluation of knowledge retention and interaction between AI systems and human instructors. The technical and ethical challenges accompanying the implementation of AI in educational processes are also emphasized. Huang et al. (2021) evaluated the application of AI in education, highlighting its positive impact on the quality of the teaching and the learning process. The authors demonstrated how AI can be applied in methods such as adaptive learning, assessment and virtual classroom management, thereby improving student engagement and creativity. Additionally, the paper addresses the challenges that AI may face in the educational sector in the future, emphasizing the importance of reforming the educational system through the introduction of innovative technologies. (Krstić et al., 2022) explored the automation of tasks such as grading. The paper emphasized the advantages of AI usage, including increased efficiency and flexibility in meeting educational needs. Additionally, there is a growing interest for AI in education, with predictions of a significant rise in the use of this technology in the coming years, especially considering the challenges brought by the COVID-19 pandemic. This paper contributes to the understanding of that how AI can transform the traditional educational practices.

3 METHODOLOGY

For the purpose of this paper, the survey for the use of AI, for students from the technical faculty at Goce Delcev University was done through a questionnaire which can be seen in Appendix A. As an opportunity to see the situation of the AI usage, we conducted an examination of the students through anonymous questionnaire. The students were from different study years with a total number of 50 students, which gave us a clear understanding of the students' opinion for their readiness for working with AI. The questionnaire itself consists of 15 questions. The research includes students from different socio-economic backgrounds which means that the ability to own electronic devices and the internet is not equal for everyone. The students are also of different ages. In context of the analysis, a clear division into genders is made, in order to show trends in AI between the male and female students. In the end of the paper, conclusions from the results are drawn and an idea for change in the learning process is provided.

4 RESULTS AND DISCUSSION

The popularity of AI in recent times gave us an idea for research in which we want to see its significance in the educational process. To realize our idea, a questionnaire with 15 questions related to AI was created. 50

students answered the questionnaire. Some data about the students included in the conducted survey can be found in Table 1.

Table 1. Group structure

Group structure		Number of students
Age	18-23	44
	other	6
Gender	Female	25
	Male	25
Total number of students in the group		50

The first question in the questionnaire is about the availability of internet in students' homes. Students who have access to internet at home have easier way of mastering various computer applications including AI tools that they encounter in the learning process. The results of the responses are: 37 yes, and 13 no. In context of the gender the results are: Female 15 yes and 10 no, and male 22 yes and 3 no.

The second question is about the use of AI at faculty. The students' answers to this question are divided. 25 students answered with yes, and 25 answered no. In terms of gender 11 female students are with answer yes and 14 with no, and male students are with 14 yes and 11 no.

The third question is about the use of AI at home, female students are with 9 yes and 16 no answers and male students responses are 18 yes and 7 no, or the total yes is 27 and the total no is 23.

The data from the questionnaire regarding the answers of the fourth question for possession of a laptop, a desktop computer, smartphones, tablets and other electronic devices are: both girls and boys have some kind of electronic device, so the answers are 50 yes and 0 no.

According to the responses, all 50 students used AI during the last three months. So, 50 answers are yes and 0 are no.

In terms of the period before the last three months, it can be seen from the responses that AI was used, but not 100 percent, as the responses showed that 21 females and 22 males used AI.

Almost everyone want to use AI while studying for exams in examination session except 13 students (10 girls and 3 boys) who stated that they do not have internet at home.

From the answers to the eighth question, it can be seen that mostly of the students use AI from 1 to 2 hours, which is not a lot of time (Figure 1). As an explanation of the answers, they said that for educational purposes they use AI for a short period of time because they get the answers quickly. So, it doesn't take so much time to set the problem and get a response back containing a solution to the given problem. The answer a) is circled from 19 female students, b) 6 and c) 0, and from the male students 24 circled a), only 1 b) and 0 c).

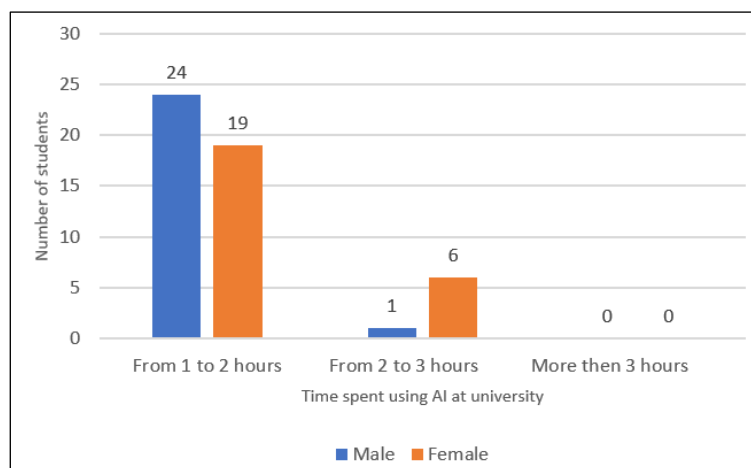


Figure 1. Time spent using AI while studying at the university

Since using AI does not require programming knowledge, learning to use tools, prior preparation, etc., it can be said that there are almost no difficulties in use, so the answers for the ninth question is 45 no and only 5 yes. 3 male and 2 female students reported that they have difficulty with logging into ChatGPT.

About the desire to use AI, according to the results we can say that it is not represented among all students, because 10 responded that they had no desire to use AI because it was not interesting to them, and they found it an unproductive waste of time because they received an answer that meant nothing to most of them if there was no teacher to explain the answer. But, the other 40 students, 22 male and 18 female say that they have a desire and use AI very often.

For the next 5 questions that provide the clearest understanding of the impact of AI on student achievement, we have the following results:

In the end of the semester in which students did not have a recommendation to use AI, the results for failed exams from female students are c) 18, d) 2, a) 1 and b) 4 and for male students are c) 14, d) 4, a) 2 and b) 5 (Figure 2).

In the end of the semester in which students have a recommendation to use AI the results for failed exams for female students are c) 1, d) 2, a) 18 and b) 4 and for male students are c) 1, d) 1, a) 18 and b) 5 (Figure 2).

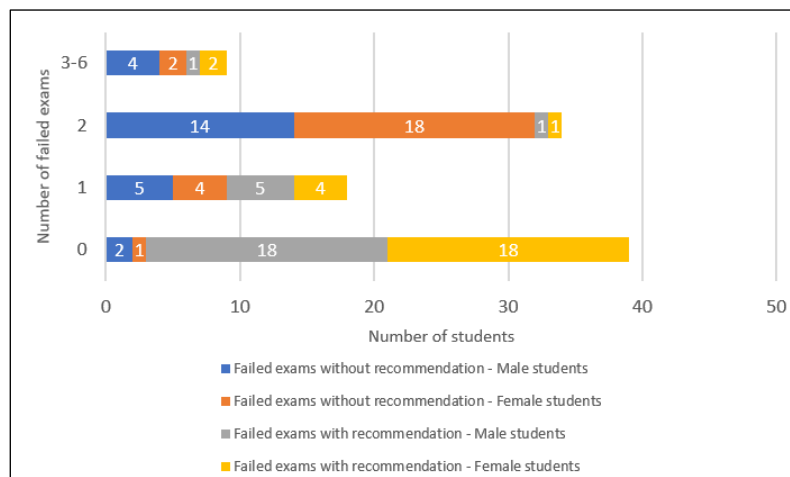


Figure 2. Failed exams with and without recommendation to use AI

After the end of the semester in which the students did not have a recommendation to use AI, the results for number of passed exams for female students are c) 1, d) 20, a) 1 and b) 3 and for male students are c) 3, d) 18, a) 0 and b) 4 (Figure 3).

After the end of the semester in which the students had a recommendation to use AI, the results for the number of passed exams for female students are c) 0, d) 24, a) 0 and b) 1 and for male students are c) 4, d) 20, a) 0 and b) 1 (Figure 3).

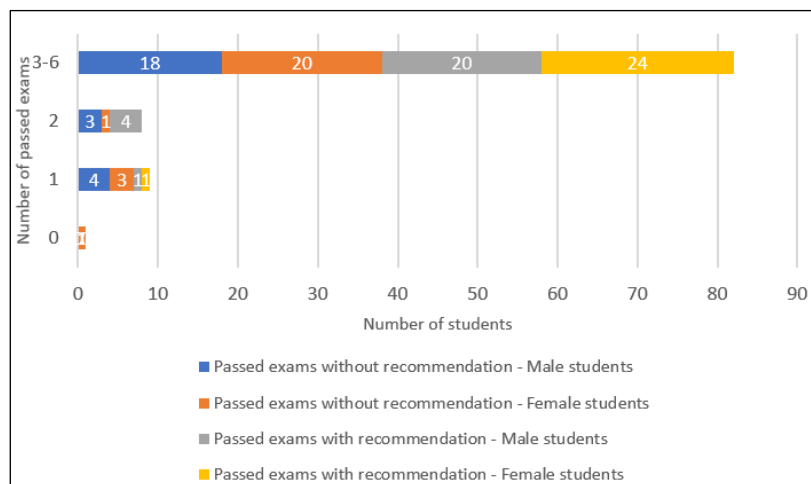


Figure 3. Passed exams with and without recommendation to use AI

Regarding the exams for which the students did not have the courage to register them after finishing the semester in which there was no recommendation to use AI, the answers from female students are c) 18, d) 2, a) 1 and b) 4 and from male students are c) 14, d) 3, a) 2 and b) 6.

From the results, the students say that AI helps them to achieve better results in exam sessions expressed through passing multiple exams. So as an idea from this survey, we can say that it is good for students to use AI because the learning is easy, more interesting, simpler, richer with content which cannot be find in the books, etc. AI could transform the traditional educational process into modern learning.

From the results, it can be also seen that the trend of AI usage between female and male students is just the same. Maybe the boys have a greater desire to use AI, but also the female students are also showing interest in using AI. In terms of the age of the students there was no difference in the usage of AI because all students included in the survey want to use it.

This research is preliminary i.e., it is an initial work as a part of a larger research in which in addition to student opinions, achievement of students in exam sessions after learning with and without AI will be analyzed. Then, students will have to solve a test with exercises from the topics studied in mathematics subjects before and after using AI. The limitations of this study include the limited number of surveyed students and the subjectivity of the responses.

5 CONCLUSION

The educational process nowadays is often aided using software, AI, calculators, search engines, etc. The learning with AI provides personalized support for the students. Students say that AI allows them to adjust the content of learning according to the needs. However, in general, the use of AI in the learning process brings several benefits and challenges that can affect the way in which students learn. AI can be beneficial for students because they can access the learning content at any time and from anywhere. The use of AI in the learning process helps to create more accessible and efficient educational environment for students. By using AI they could better solve the problems and achieve better results such as passing more exams than when they only use traditional lecture based learning. From the survey, can see that when the students use AI, they feel more prepared for exams, register more exams, and pass more of them.

Based on this research, an idea emerges for a change in the teaching process by advising students to use AI at home as well as in practice classes for help when they have something complex to solve alone.

In future research, we plan to broaden this study with obtaining results through solving a test with exercises from the topics studied in mathematics subjects before and after using AI.

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APPENDIX A: QUESTIONNAIRE - A LIST OF QUESTIONS

Questionnaire related to AI

Circle one answer:

1. Do you have internet at home?
Yes No
2. Do you use AI at faculty?
Yes No
3. Do you use of AI at home?
Yes No
4. Do you have a device which can be used for accessing AI tools?
Yes No
5. Did you use AI in your learning in the last three months?
Yes No
6. Did you use AI in your learning in the period before the last three months?
Yes No
7. Do you want to use AI while studying for your exams in examination session?
Yes No
8. How much time did you spend using AI while studying at the university?
a) From 1 to 2 hours b) From 2 to 3 hours c) more then 3 hours
9. Is it difficult for you to use AI?
Yes No
10. Do you want to use AI for everything you need?
Yes No
11. How many failed exams were there after the end of the semester in which you did not have a recommendation to use AI?
a) 0 b) 1 c) 2 d) 3-6
12. How many failed exams were there after the end of the semester in which you have recommendation to use AI?
a) 0 b) 1 c) 2 d) 3-6
13. How many exams were passed after the end of the semester in which you did not have a recommendation to use AI?
a) 0 b) 1 c) 2 d) 3-6
14. How many exams were passed after the end of the semester in which you have a recommendation to use AI?
a) 0 b) 1 c) 2 d) 3-6

15. How many exams did you not have the courage to register for after finishing the semester in which there was no recommendation to use AI?
- a) 0 b) 1 c) 2 d) 3-6