Teachers' Perception of AI and Their Attitudes Towards AI

Mario Konecki[1], Tanja Baksa[2] and Mladen Konecki[1]

[1]*Faculty of Organization and Informatics, University Zagreb, Pavlinska 2, Varaždin, Croatia*
[2]*Media and Communication Department, University North, Trg Žarka Dolinara 1, Koprivnica, Croatia*

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Abstract: Even though artificial intelligence has been around for a while, ChatGPT is largely the reason why more educators are now discussing it. A lot of educators are worried about artificial intelligence in schools. While some educators believe it ought to be outlawed and prohibited from use, others find advantages. The research presented in this paper aims to comprehend the attitudes and perception of high school educators regarding artificial intelligence (AI), its applications in everyday life and the classroom, and the possible effects AI may have on educator careers and the educational system. Research results show that teachers learn about AI mostly on their own, and that their attitudes towards AI is generally positive, which suggests that additional efforts put into organized teacher training would be beneficial.

1 INTRODUCTION

Artificial intelligence (AI) has become a part of everyday life. Today AI has many applications in several fields, such as health care, education, speech recognition, image processing, natural language processing, smart robotics, autonomous cars, energy systems, and many more (Jiang et al., 2022). Since 1956, when the term was coined by McCarthy, development of AI had its ups and downs (Negnevitsky, 2005). Today a renaissance of AI development can be identified and observed.

AI in education or AIEDU is nothing new. Woolf discussed since 1991 about AI in education, and almost 30 years later many AI systems are used in education in the form of tutoring systems, adaptive e-learning, chatbots, assessments, visualization and virtual learning environments etc. (Schmid et al., 2021; Holmes et al., 2019; Zhang & Aslan, 2021; Chen et al., 2020). The COVID 19 pandemic forced educators and students to learn via computers and Internet, thus many ICT tools were used to continue with the teaching and learning process (Baksa & Luić, 2020).

But beside ICT tools, there are also many AI tools that are used in teaching and learning process (Holmes et al., 2019). However, there are also many obstacles that impact the adoption of AI systems like expenses and scalability (adaptability), ethics and privacy, lack of awareness of AI among educators, and a lack of useful advice for educators (Zhang & Aslan, 2021). As for the use of AI systems in education, Goksel and Bozkurt's (2019) review of the literature on AI and education today and in the future indicates that most research has been done on adaptive learning, personalization and learning styles, expert and intelligent tutoring systems (ITS), and AI as future components of educational processes.

Humble and Mozelius (2022) discuss the advantages and disadvantages of artificial intelligence in the classroom. They arrive to the conclusion that while AI can help teachers and students with language acquisition and STEM education, it is limited by poor tutoring systems and biased development.

Many concerns arise while discussing AI in education, like the role of the teacher, how to determine which AI system is effective and which isn't, how to safeguard the data of instructors and students, etc. Following the launch of ChatGPT 3.5 in November 2022, a few of these questions resurfaced.

For this reason, a large number of researchers and educators have experimented with ChatGPT's applications and studied the benefits and drawbacks of employing it in the classroom (Tan, 2023). As students are already utilizing this new technology to write essays and other academic assignments, teachers should learn how to integrate it into teaching and learning, according to Xin's evaluation of the literature. In the long run, this might improve

educational quality. But on the other hand, teachers should also talk with students about the shortcomings of this kind of programs (Xin, 2023).

1.1 Teachers' Attitudes Toward AI

Many students are already using different AI tools, and in comparison to older individuals, younger people are more accepting of AI (Zhang & Dafoe, 2019; Shepman & Rodway, 2022). It is therefore the teachers' responsibility to employ AI tools or at the very least to be aware of their existence and capabilities in order to keep up with the students. Thus, teachers' attitudes toward AI are very important when talking about implementation of it in the teaching and learning process, and education in general. There aren't many studies on the topic. In the so far conducted studies among teachers or pre-teachers, there are optimistic prediction, but also concerns regarding AIEDU.

Kim et al. (2019) for instance, stated that Korean educators thought AI could revolutionize both society and education. The majority of educators would be open to implementing an AI-based platform for instruction, which may result in personalized lessons for each student, less work for educators in terms of administration, support for kids who are having difficulties, and better communication with parents.

Nazaretsky et al. (2021) stated that confirmation bias is present in teachers' attitudes regarding AI-based technology as seen by their reluctance to accept recommendations from the technology when they conflict with what they already know about their students. When it comes to evaluation, teachers demand AI to be 100% accurate when grading open-ended questions. Personalized instruction is something that teachers feel AI-based technologies can help with, but they are unsure of their capacity to use these tools effectively because they will need to make significant adjustments to their current teaching methods (Nazaretsky et al. 2021). Many educators think that integrating AI will significantly change both society and education.

Artificial intelligence (AI) education has to permeate both teaching and learning in order to increase students' preparedness for future roles in society. Additionally, a lot of educators are amenable to using AI-powered teaching and learning platforms because they see the potential benefits, which include improved parent-teacher communication, more tailored education, less administrative work, and support for children in need (Lee et al., 2024).

2 METHODOLOGY

The aim of the research presented in this paper is to get an insight how high school teachers feel about artificial intelligence and its implementation. A questionnaire from this study as well as some questions based on relevant research on knowledge and attitudes toward AI (KAAI) (Kim & Lee, 2020), studies by Došenović et al. (2022), and Chao et al. (2020), were used in the research, which was carried out using a quantitative method that includes the original metrics for measuring teachers' attitudes toward AI in education, Teachers' Attitudes Toward AI in Education scale (TATAIE) according to Fatalaki et al. (2024). The teachers were informed that their participation is voluntary and anonymous. In accordance with the aims of the research, the following research questions were specified:

1. How do high school teachers feel about AI and its use in general?
2. How do high school teachers feel about AI and its use in education?
3. What concerns high school teachers have when it comes to AI?

According to the research questions following hypothesis were formed:

H1: High school teachers are generally positive about AI development.

H2: High school teachers that use ICT and AI tools in everyday life are more open to implement AI tools into their teaching methods.

H3: Most high school teachers believe that teachers cannot be replaced by AI.

3 RESULTS

3.1 Demographics

The research sample consisted of 95 high school instructors (N = 85 female and N = 10 male) who instruct students in grades 9 through 12 at high schools, grammar schools, and vocational schools. Thirty of them work in grammar and vocational schools, while forty of them work in vocation schools. Two in art school and eighteen in grammar school. The duration of the teachers' job experience varies as well, five years old or younger to thirty-five years old or older. Just one person works more than 35 years while still attending school; the majority of

participants (73,68%) work between the 11 and 35 years (Table 1).

Table 1: Demographics.

	Frequency	Percent
Gender		
Male	10	10.53
Female	85	89.47
Work experience (in years)		
0-5	7	7.367
6-10	17	17.89
11-20	32	33.68
21-35	38	40.00
>35	1	1.05
Work place		
Grammar school	18	18.95
Vocational school	45	47.37
Combined vocational and grammar school	30	31.58
Art school	2	2.11

3.2 Knowledge and Source of Information About AI

Presented research aimed to determine the teachers' level of familiarity with AI technologies and tools, as well as where they obtain knowledge on the subject. The teachers should self-estimate how good they are in knowing the AI technologies and tools. When it comes to the source of information about AI, teachers could select the top three sources from which they learn the most about AI. They could choose between teacher training, textbooks, Internet (various portals and websites), social networks (Facebook, Instagram, TikTok), YouTube, television, radio, printed newspapers, literature review, family members, work colleagues or something else.

The most named sources are different websites and portals on the Internet (80%), social networks like Facebook, Instagram or TikTok (53%), and the third one is teacher training (35,8%). Work colleagues are on the fourth place with 27,4%, followed by YouTube with 20%. The least information about AI teacher get from radio (6,3%), papers (3,2%) and textbooks (3,2%). 14,7% of teachers get the most information about AI on television, 13,7% from literature review, and 12,6% from their family members. Two educators also mentioned their students as a source of information about AI.

Although the teachers don't know much about various AI technologies and tools (1.253), they believe they know enough about AI in general (mean 3.126), as can be seen in Table 2.

Table 2: Self-estimated AI knowledge and familiarity with AI tools.

	Self-estimated AI knowledge	Familiar with many AI tools
Mean	3.126	1.253
Std. dev.	1.170	0.757
Minimum	1.000	1.000
Maximum	5.000	5.000

3.3 Attitudes Towards AI

In items regarding attitudes toward AI, teachers could choose between Strongly disagree, Disagree, Undecided, Agree, and Fully agree. Teachers know what artificial intelligence (AI) can and cannot do. In general, they have more moderate and positive views about AI than negative ones. While many educators think AI might benefit people in their daily lives, they are also worried that AI can rule the world and cause job losses (Table 3). Given that the median value is primarily positive and moderate, it can be said that teachers have a positive view of AI, supporting H1.

Table 3: Teachers' perception and attitudes regarding AI.

AI can / does	Median	Mean	Std. dev.
recognize speech	4.000	4.158	0.971
react to a person	4.000	3.758	1.028
recognize a person's face	5.000	4.442	0.859
look like a human	2.000	2.221	1.204
move like a human	2.000	1.958	1.091
speak like a human	3.000	2.958	1.157
will rule the world	2.000	2.337	1.217
can solve problems	3.000	3.284	0.907
monitor and control people	3.000	2.916	1.117
store big data	5.000	4.516	0.742
make the quality of life better	3.000	3.400	0.994
help people in everyday life	4.000	3.695	0.935
I am curious about AI development	4.000	3.747	1.157
AI makes people stupid	3.000	3.253	1.304
I trust fully in AI	2.000	2.368	0.957
AI is smarter than humans	2.000	2.221	1.002
not make mistakes	1.000	1.632	0.876
is unreliable	3.000	2.937	0.848
affects the loss of jobs	3.000	3.200	1.234
AI-development – good or bad	3.000	3.442	0.695
AI – danger, or benefit	3.000	2.484	1.061

3.4 Teachers' Attitudes Towards AI in Education

Teachers have also positive attitudes toward AI in education. They see AI as a good helping tool for learning, but also for teacher preparing for the class, and choosing teaching methods. On the other hand, teachers are more moderate when it comes to readiness to implement and use AI tools in teaching, and that it brings benefits to education. Teachers also think AI cannot replace them, and they also think AI should not be banned from school. When it comes to legal regulations, they are also moderate about it (Table 4). Research results show that teacher are curious about AI development and are positive towards AI in education. Teachers that use AI in everyday life are also more open to use AI tools in teaching. Thus, H2 is confirmed.

Finally, most teachers don't believe they could be replaced by AI. Thus, H3 is confirmed.

Table 4: Teachers' attitudes toward AI in education.

AI	Median	Mean	Std. dev.
can replace teachers in schools	1.000	1.411	0.805
is good as a learning aid, not substitute for teachers	5.000	4.632	0.730
helps me already in teaching	3.000	3.200	1.145
can make class preparation easier	4.000	3.674	0.972
will change the teaching methods	4.000	3.642	0.922
can help in choosing teaching methods	4.000	3.684	0.937
should be banned from schools and education	2.000	1.979	1.082
education without AI is no longer imaginable	3.000	3.189	1.223
brings only benefits to education	3.000	2.653	0.987
we are already late in using AI in teaching and education.	3.000	3.000	1.280
should be an integral part of the educational process.	3.000	3.137	1.182
readiness for AI implementation in teaching	3.000	2.926	0.866
should be regulated by law	3.000	2.674	0.515

4 CONCLUSIONS

Previous studies have demonstrated that educators are worried about artificial intelligence (AI) and how it may affect their work (Nazaretsky et al., 2021, Shepman & Rodway, 2022). According to the research results, educators are aware of the benefits and drawbacks of artificial intelligence (AI) in general as well as of its application possibilities in the teaching and learning process. Research results show that the teacher informing about the AI in most cases comes from their own online activities. This kind of results suggest that teachers would benefit from additional curriculums that would enable them to learn more about the AI, and that more aiding tools that can help teachers to use AI easier would be beneficial.

Research results show that teachers have generally positive attitudes toward artificial intelligence, and this does highlight the need for more investment in teacher education and their understanding of AI tools so that they can inform their students about the advantages and disadvantages of using AI.

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