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Attitudes of Czech and Polish Teachers Towards the Use of Artificial Intelligence in Schools

Abstract

The aim of the research study was to examine the subjective feelings of Polish and Czech teachers regarding the introduction of artificial intelligence in school. The partial goal of the research study was to find out whether there is a difference between the views of Czech and Polish teachers on the introduction of the use of artificial intelligence in schools.

To achieve the research goal, we decided to use a qualitative research. The semi-structured interview method was used with Czech and Polish primary and secondary school teachers.

As part of the research, it was found that Czech teachers fear the advent of artificial intelligence and its use in education, especially that students will “abuse” AI to cheat and plagiarize. This phenomenon was not detected among Polish teachers. They rather perceived artificial intelligence as a help for teachers; respondents from the ranks of Polish teachers already had their first experience with the use of artificial intelligence. Among Czech teachers, there are also those who work with chatbots and perceive them as a tool that helps them reduce their workload and make their work more efficient. Most Czech teachers see the introduction of artificial intelligence in schools as inevitable and realize that their task is to teach pupils to use AI effectively. Also, Polish teachers believe that with the advent of artificial intelligence, the role of the teacher is changing; the teacher

is expected to be a guide for the student to learn about the effective use of artificial intelligence. Teachers, both Czech and Polish, are also aware that the teaching system will also have to change with the arrival of AI in schools. Pupils will need to be assigned different types of tasks than before, i.e., ones that AI will not create for them.

K e y w o r d s: artificial intelligence, chatbot, schools, teachers, readiness, Poland, the Czech Republic

Introduction

Artificial intelligence is gradually entering our lives, including school. Nowadays, many people use AI for various activities such as translations, calculations, information generation, image generation, etc. Artificial intelligence checks spelling and grammar for us when writing texts. Although artificial intelligence can be an excellent teacher's helper, its use also brings about many problems (generation of erroneous information, plagiarism). Therefore, it is necessary to keep in mind not only the possibilities of artificial intelligence, but also its limits.

Since we are aware that the given topic is current and has not yet been sufficiently explored, especially in the area of Czech and Polish schools, we decided to carry out a research focusing on the attitude of Czech and Polish teachers towards artificial intelligence.

The presented research study focuses on the examination of the introduction of artificial intelligence in Czech and Polish schools, the readiness of Polish and Czech teachers to use artificial intelligence in schools. The aim of the research study was to examine the subjective feelings of Polish and Czech teachers regarding the introduction of artificial intelligence in school. The partial goal of the research study was to find out whether there is a difference between the views of Czech and Polish teachers on the emergence of artificial intelligence and its use in education. To achieve the research goal and answer the research questions, we decided to use a qualitative research, and the semi-structured interview method was used with Czech and Polish primary and secondary school teachers.

We assume that this research can show whether and, if so, how teachers use AI tools in teaching. We assume that we will reveal teachers' concerns regarding the introduction of AI into the education sphere. We assume that we will find out what problems teachers may face when using AI in teaching. We also assume that we will find out whether AI helped them to enrich or improve the quality of teaching.

In the research, we focused mainly on Czech and Polish teachers, not only because the attitude of Polish and Czech teachers towards artificial intelligence

is not sufficiently researched, but also because, in connection with the use of AI in society, the Czech Republic and the Polish Republic are among the countries that use artificial intelligence the least compared to other European countries ((Evropský účetní dvůr, 2024).

1. Artificial Intelligence

Artificial intelligence (AI) focuses on creating computer systems that teach, analyze, create various texts, generate information, evaluate data, and provide solutions to various problems (Kaplan, 2019). Artificial intelligence is able to answer questions and even hold a conversation with users (Vanian, Leswig, 2023). Although these systems are capable of simulating human intelligence and, in addition, they are more accurate and faster when making decisions than humans (Cejnarová, 2018), we must always remember that it is a robot, therefore texts generated by artificial intelligence lack human creativity, and in addition, information generated by artificial intelligence may not always be true (Tłuczek, 2023). Artificial intelligence does not think like a human, it only follows our instructions (Gerrish, 2020) and answers our questions based on available data (Afzaal, Nouri, Zia, Pappetrou, Wu, Li, Weegar, 2021). Moreover, the more relevant data the artificial intelligence has, the more accurate the results of its work or the answers to our questions will be (Spector, Ma, 2019). The accuracy of the generated results and answers also depends on the quality of the so-called text prompts, that is, the commands or instructions that we enter. The more precisely the prompts are formulated, the better the answers of the artificial intelligence appear. (Adams, Pente, Lemermeyer, Rockwell, 2021).

2. Use of Artificial Intelligence in Education

In the field of education, we are experiencing rapid changes thanks to the constant development of modern technologies. One of the key innovative modern technologies that are transforming the world's education systems is the use of artificial intelligence.

The breakthrough came mainly with the advent of artificial intelligence tools such as ChatGPT and Microsoft Bing, which, like other artificial intelligence tools, can be valuable helpers in the education process. Artificial intelligence enables the generation of text, audio, visual or audiovisual materials for teaching (Tapalova,

Zhiyenbava, 2022, Pokrivčáková, 2019). Artificial intelligence is able to stand in for the teacher in the evaluation of student work using automatic task evaluation and can thus provide immediate feedback to students, which enables faster identification of problems and provision of help when needed (Link, Koltovskaia, 2023). AI can also effectively represent the teacher when creating tests (Tapalova, Zhiyenbava, 2022), learning tasks (Chembe, Nasilele, Msendo, 2023), which are also “tailored to a specific student, their abilities and needs (Chen, li, Ding, Liu, 2021). Artificial intelligence converts text into spoken word (Southgate, Blackmore, Pieschl, Grimes, Guire, Smithers, 2019). AI is also capable of editing texts, correcting grammatical and stylistic errors in them. There are various models and tools based on artificial intelligence that are capable of editing and proofreading texts. AI models such as language correctors are designed to identify and correct errors in text, some AI tools not only correct errors such as bad word order or grammatical errors, but also suggest stylistic adjustments to the text. (Link, Koltovskaia, 2023). Artificial intelligence has long been used to translate texts (Čeňková, 2021, Du Sautoy, 2020). Artificial intelligence can be used to train conversational skills in different languages, develop the ability to argue. For these purposes, chatbots can simulate a real conversation, virtual assistants can help people develop the ability to argue as they provide feedback regarding the arguments of users and help them filter the logic, comprehensibility and validity of their arguments, or online platforms and applications, which use artificial intelligence to train argumentative skills. Artificial intelligence can also be used to create a simulated debate environment that provides feedback and helps develop users’ argumentation skills through scenarios, questions, or artificially created situations in which users can practice their argumentation skills (Huang, Saleh, Liu, 2021). Artificial intelligence tools can thus become invaluable conversational partners, especially in the field of English teaching, because they are available at any time and, moreover, they help to eliminate the mental block from conversation in a foreign language, which is associated with the fact that we are afraid of what we will do when speaking in a foreign language a mistake in public or that we will not be able to find the right words.

With the help of AI, we can also make distance learning more efficient, as it is an excellent helper in supporting personalized learning that adapts to the individual needs and learning styles of students. Adaptive learning systems can provide materials and learning tasks appropriate to the level and pace of individual students. Based on data analysis, artificial intelligence then suggests personalized study plans to specific students (Chen, Li, Ding, Liu, 2021)

Although AI has many positives, we must not forget the risks associated with its use. AI is not always perfectly trained and can generate false information on different topics (Hlosta, Herodotou, Bayer, Fernandez, 2021) so it can be abused to generate disinformation content. Additionally, generative models such as GPT are capable of producing persuasive, authentic-feeling text (Al-tkhayneh, Alghazo,

Tahat, 2023, Khan, Fatima, Qureshi, Kumar, Hanan, Hussain, Abdullah, 2023). It can be easily exploited to create plagiarism that is hard to detect (Khan, Fatima, Qureshi, Kumar, Hanan, Hussain, Abdullah, 2023). The problem of using artificial intelligence to create plagiarism, which brings ethical and legal consequences, arose mainly with the advent of the generative language model ChatGPT, which can produce essays, homework, seminar or qualification papers (Bédi, Chiera, Chua, Cucchiaroni, Ni Chiaráin, Rayner, Simonsen, Zviel-Girshin, C-Lara, 2023).

Artificial intelligence and its tools are constantly evolving, and new models are even more accurate, more powerful, and their outputs are of higher quality (Khan, Fatima, Qureshi, Kumar, Hanan, Hussain, Abdullah, 2023)

2.1. The onset of the Use of Artificial Intelligence in Schools in the Czech Republic

Czech teachers are currently gradually getting used to the advent of artificial intelligence, which is also penetrating the field of education and training. According to research by the Pedagogical Faculty of the Palacký University in Olomouc, 27.7% of Czech teachers use chatbots in preparation for teaching, 15.82% in teaching. As part of this research, it was found that most Czech teachers are convinced that artificial intelligence belongs in today's schools, 45.5% of Czech teachers are convinced of the positive contribution of artificial intelligence in the field of education. For that reason, 81.7% of teachers are aware that teachers must learn to work with artificial intelligence. Many teachers also perceive the risks associated with the use of artificial intelligence, especially chatbots. Almost half of the teachers (47.6%) are convinced that chatbots serve pupils to cheat, while 34% of Czech teachers have already discovered several pupils who misused ChatGPT to cheat – they had a report or other type of text homework generated for them (Kopecký, Szotkowski, Voráč, Krejčí, Dobešová, 2023).

And although the use of the term artificial intelligence dates back to 1956, when it was first used by the American computer scientist John McCarthy at a conference in Dartmouth (Korp, 2023), it was only with the discovery of chatbots that Czech education began to be more concerned with these tools, to fear these tools and eagerly began to discuss the subject. The topic of artificial intelligence is also addressed by the Ministry of Education, Culture and Science, which is preparing to present a plan to support the use of artificial intelligence in education (so far, only a working version exists). The National Pedagogical Institute also offers teachers online webinars and face-to-face seminars dedicated to artificial intelligence tools and the issue of introducing artificial intelligence into schools. In the spring of 2023, a working group was established within the NPI CR, which published recommendations for schools on how to work with AI in order to prevent its unethical use (NPI, online).

The use of artificial intelligence in education is also dealt with by the European Commission, which in 2022 issued the document Ethical guidelines for the use of artificial intelligence within the European Union, which is the result of activities implemented as part of the Action Plan for Digital Education (2021–2027). This document contains guiding questions that teachers should ask themselves in connection with the use of AI, as they provide orientation and stimulate educators to think (European Commission, 2022).

The government of the Czech Republic also addresses the issue of artificial intelligence in the document National Strategy of Artificial Intelligence in the Czech Republic, in which it discusses the impact of AI on the labor market as well as legal, ethical and social aspects of the use of AI (Ministry of Industry and Trade, 2019).

2.2. The onset of the Use of Artificial Intelligence in Schools in Poland

Also in Poland, artificial intelligence is a topic that interests many teachers. They perceive its enormous potential, which, in their opinion, will certainly transform the Polish education system, but also the professional training of teachers and other professions. However, Polish teachers are aware that the use of artificial intelligence poses a risk to the privacy and safety of students and teachers (PARP, online). Therefore, it is important to protect the privacy and safety of teachers and students. It is for this reason that Polish education in the field of artificial intelligence is governed by the Ethical Guidelines for the Use of Artificial Intelligence within the European Union (European Commission, 2022).

In October 2023, a research study dealing with the topic of using artificial intelligence in Polish education was published. It was found that teachers currently use ChatGPT more often than students, with research showing that 51% of teachers and 40% of students use ChatGPT at least once a week in their work. The use of chatbots in teaching is also supported by the teachers themselves. As part of the research, it was found that 38% of teachers lead their students to use chatbots effectively. Both teachers (72%) and students (63%) are aware that the advent of chatbots leads to inevitable changes in the traditional concept of education. Both teachers and students are convinced that a chatbot can make the education process more efficient (PARP, online)

3. How do Czech and Polish Primary and Secondary School Teachers Perceive the Introduction of Artificial Intelligence in Schools? – the Methods of the Research Investigation

To find out how Czech and Polish school teachers perceive the introduction of artificial intelligence in schools, we decided to use a qualitative research to examine the subjective feelings of teachers regarding the introduction of artificial intelligence in schools.

The partial goal of the research study was to find out whether there is a difference between the views of Czech and Polish teachers on the onset of the use of artificial intelligence in schools.

The following research questions follow from the research objective:

RQ1 – Are Czech/Polish teachers concerned about the introduction of artificial intelligence into schools?

RQ2 – Do Czech/Polish teachers see artificial intelligence as a tool that will help them?

RQ3 – Do Czech/Polish teachers have experience with the use of artificial intelligence? What experience do Czech/Polish teachers have with artificial intelligence?

To achieve the research goal and answer the research questions, a qualitative method, a method of semi-structured interviews with primary and secondary school teachers, was used.

The research sample consisted of 20 Czech and 20 Polish teachers between the ages of 25 and 48. The first contact with the respondents took place by e-mail, with the help of which they were informed about the purpose of the research investigation and the topic of the interview, and later the date of the meeting itself was arranged. At the beginning of the meeting, the respondents were introduced to the research in more detail, the preservation of anonymity and consent regarding the recording and subsequent processing of the interview for the purposes of the research investigation were agreed upon. The interviews were recorded on a mobile phone and lasted about 15–40 minutes each. When collecting and clarifying data, we also used online interviews through electronic means of communication in some cases. All data were digitized so that they could be archived on a computer and continuously analyzed using the ATLAS/ti computer program.

3.1. Analysis of Qualitative Data

The methods used were based on open coding. The goal of open coding was the thematic disclosure of the analyzed text. The analyzed interviews were thus divided into units, meaning words, sentences or paragraphs determined according to meaning, the unit thus became a meaningful unit. A code has been assigned

to the specified unit. The code was named according to what the given sequence discusses, what phenomenon or theme it represents. Both technical terms and in vivo codes were used to indicate the codes. After the code hierarchy is created, the codes are categorized. Categorization is the process of grouping concepts that seem relevant to the same phenomenon (Strauss, Corbinová, 1999).

Using categorization, we identified five categories during the analysis of semi-structured interviews with Czech teachers:

- fear of cheating and plagiarism
- concerns that the use of artificial intelligence will suppress the “natural intelligence of students”
- fear of own unpreparedness for the advent of chatbots
- acceptance of artificial intelligence as a necessity
- artificial intelligence as help

As part of the analysis of semi-structured interviews with Polish teachers, four categories were identified:

- teachers believe that they are poorly informed about artificial intelligence
- artificial intelligence as an aid to teachers
- artificial intelligence will completely change the entire education system
- artificial intelligence has its limits

We have described and clarified the individual categories on specific cases.

4. How do Czech Primary and Secondary School Teachers Perceive the Introduction of Artificial Intelligence in Schools? – the Results of the Research Investigation

4.1. Fear of Cheating and Plagiarism

Some teachers fear that students will abuse AI tools to cheat and plagiarize. “An artificial intelligence is associated with the risk of plagiarism and cheating of varying intensity.” (respondent 7)

“I already have experience with this kind of cheating as an English teacher. The student handed in the work to me, a literal copy-paste work, which was obviously created for them by a chatbot. The text was perfect, I had no evidence of fraud, because the plagiarism created by the chatbot cannot be easily proven.” (respondent 1)

Cheating, when a chatbot creates work for the student, is also associated with problems of how to evaluate this work. And there is also a problem in how to prove to the student that it is plagiarism, a fraud, because works created by a chatbot

can be more difficult to detect as plagiarism. This is because chatbots are able to generate content that is not a copy of an already existing text, i.e., the text created by a chatbot can be an original text, usually a compilation of several texts.

“An artificial intelligence will help the student with the perfect processing of homework, show him the way how not to study and copy homework or other written work anywhere and at any time.” (respondent 9)

“It can write a paper, a seminar paper and a thesis. It can speak Czech and English. It’s grease. There are even AIs that have figured out how to write something so that other AIs don’t recognize that it was written by an AI.” (respondent 20)

In connection with these skills that AI possesses, the respondents are afraid of using AI in education.

“And we have a problem. How to evaluate work that is obviously written by a chatbot? ... Yes, I tried face-to-face interviews with students about their work. It won’t get you anywhere. If you get stuck on the argument: but I really wrote it myself, you have no chance to prove anything.” (respondent 1)

“Artificial intelligence is very good at plagiarism. Basically, it is impossible to detect whether the text was written by artificial intelligence or not.” (respondent 14)

One of the respondents also described a situation where they discovered that pupils had used artificial intelligence to complete their homework.

“My students had the task of making a presentation. However, I found their presentation strange. Then they explained to me that they created it an hour ago in tom.app. You enter a topic and artificial intelligence creates a presentation for you. They finally showed me how they did it. I couldn’t help but wonder. I think this is another challenge for our education system.” (respondent 14)

4.2. Concerns that the use of Artificial Intelligence will “Suppress the Natural Intelligence of Students”

In our interviews with teachers, we also come across views that the use of AI may eventually “suppress the natural intelligence of students.” In particular, teachers are concerned that students will over-rely on AI, leading to their dependence on technology at every turn of their independent work.

“An artificial intelligence is actually always dangerous in the process of education. It does everything for the pupil, he doesn’t teach them the necessary skills, the pupils simply don’t have to think.” (respondent 10)

Teachers fear that dependence on technology will lead to the suppression of the development of students’ own thought processes, to the suppression of the development of knowledge and skills, to the suppression of creativity or independence. If students rely too much on artificial intelligence for each independent work, it will lead to insufficiently developed critical thinking in these students.

“For many morally weaker children, there will probably never be a reason not to use AI for everything, anything, when it’s a thousand times easier. These children may never write a style paper, any independent text. They also leave the calculation of math examples to some app... If they let artificial intelligence do everything for them, they will be completely lost without it at the end of their studies” (respondent 3)

„The problem is that if the students use it and it will write phrases and various elaborations for them, they will not be able to think and create meaningful sentences and ideas on their own.” (respondent 2)

„Thanks to the use of chatbots, students no longer have to think at all, because the robot will do all the work, or at least most of it, for the student. In the same way, giving the chatbot the task of creating a story takes all creativity out of the hands of the student. This is not the development of creative thinking, it is quite the opposite. I would certainly not recommend any teacher to give pupils this type of tasks.” (respondent 3)

If children rely too much on AI, it happens that they accept the wrong information that AI generates for them without any critical thinking.

“The chatbot can believably generate erroneous information and even logically justify this erroneous information.: (respondent 11)

4.3. Fear of Own Unpreparedness for the Advent of Chatbots

Many teachers may feel apprehension or fear related to the use of chatbots in education, because they are aware of their own unpreparedness to work with this technology.

“Using a chatbot is not entirely easy, we have to take into account that it is a machine, it can make mistakes and we have to be able to recognize and correct those mistakes.” (respondent 10)

“An artificial intelligence can help us a lot, but we must learn to use it fully and appropriately.” (respondent 19)

We encounter respondents who do not have sufficient personal experience of working with chatbots or artificial intelligence in general, and these teachers fear that they will not be able to integrate these tools into their teaching. If teachers are not clear about how they can use chatbots in teaching or in preparation for teaching, they also have concerns about how these tools will affect the quality of education and the quality of students’ knowledge. As part of the interviews, it was found that teachers feel that they do not receive sufficient support, training and education in this area.

“Why are teachers worried about chatbots? Firstly, because a huge number of people need someone to tell them something about it, to explain to them how the thing works and that is not happening.” (respondent 3)

We encounter teachers' fears that they could be replaced by artificial intelligence and would lose their jobs. These concerns are especially reinforced by various reports on the Internet, in which there is a debate about whether artificial intelligence can replace teachers.

"I think she is especially afraid of those who understand her less. In addition, I think that rumors like you will lose your job, you won't have a job, etc. also cause fear." (respondent 2)

"With the development of new technologies based on artificial intelligence, there is serious speculation about the replacement of human reason in other more sophisticated activities than belt production or storage. It is likely that sooner or later a smart robot will replace or at least be able to replace basically everyone who works with computers, data, and information. From accountants and economists to teachers, test makers, journalists..." (respondent 11)

4.4. Acceptance of Artificial Intelligence as a Necessity

According to the interviews, it is clear to most teachers that the introduction of artificial intelligence cannot be avoided, and therefore they try to accept it.

"When it comes to artificial intelligence, one thing is for sure, AI is here and it is already changing the world. It is therefore essential that teachers understand their possibilities and implications." (respondent 6)

Teacher realize that the task of education in the coming years will be to teach students to use AI as a normal tool, to explain to them the risks and pitfalls of using AI.

„Artificial intelligence will now improve rapidly, it needs to be included and used creatively in teaching. Just as handwritten final theses are no longer handed in, and even the stupid Word helps us with basic proofreading by underlining typos. We don't even notice it anymore, but it's a technological aid to what we do." (respondent 4)

„So it's like a calculator, the Internet or Wikipedia. You have to learn to work with it, use it and not blindly ban it. And in this sense also to assign tasks." (respondent 5)

"Pupils will need to be taught how to use artificial intelligence well because it can help them." (respondent 7)

Teachers also realize that along with the introduction of artificial intelligence into schools, the system of teaching, testing, and assignments will also have to change. Pupils will need to be assigned tasks that AI will not help them with or that AI will not do for them.

„We need to change the education system, the way we currently train students. In relation to the pupils, I see the biggest problem with workbooks, because there the pupils will use it quickly and well, and I simply won't be able to enter these things at home and there is so little space for it at school. Some of them cheated

before, but it was easier to tell. One of the ways will be to specify and personalize the assignment as much as possible, of course to move most of the assignments and tasks to school, to appeal that the chatbot will no longer write it for them at the graduation.” (respondent 5)

„Don’t be afraid that he will do tasks for children, but come up with tasks where it doesn’t matter, where, on the contrary, the emphasis will be placed on the pupils/students solving a problem with the help of AI. They will critically assess her answers and include her in their work. They just learn to use it to their advantage as another tool.” (respondent 4)

4.5. Artificial Intelligence as an Aid to Teachers

Many respondents see artificial intelligence as a tool that can greatly help teachers, especially when preparing for teaching.

“An artificial intelligence can provide relevant information about the given topic, logically structure the text.” (respondent 13)

“Chatbot as a large language model is developed so that it can generate natural and understandable answers to various questions. In this way, it can help people find solutions to various problems or gain information on various topics.” (respondent 15)

Teachers see it as a tool that will help them reduce their workload and save time.

“Although artificial intelligence is not flawless and often makes mistakes, it can do incredible things. It creates and solves physics problems for you in a few seconds and offers an explanation of the individual steps that lead to the correct result.” (respondent 8)

“Today she created a Gap Fill exercise for me in the past tense using the verbs I assigned to her. Perfect. (respondent 4)

“I use it in style – suggest words for a topic.” (respondent 12)

“I asked the chatbot how to creatively enrich the music lessons and it immediately brought up quite interesting activities”. (respondent 5)

“Artificial intelligence can pre-prepare a presentation on a given topic.” (respondent 13)

“It can be used to generate worksheets on a given topic.” (respondent 14)

“I use artificial intelligence to create texts, for example texts summarizing the topic” (respondent 18)

And although teachers perceive artificial intelligence as a useful tool, a helper in preparing for teaching, they realize that it is only able to support teachers in cognitively undemanding tasks that do not require much creativity and that can be time-consuming.

“For me, artificial intelligence is useful in trivial but time-consuming things, for example, it quickly writes down X words for the required vocabulary, from which I then create a Wordwall for students to practice. It is an invaluable helper in the production of various cards and activation aids for teaching, I also managed to use ChatGPT to do a great activity for a conversation in a foreign language, when X pupils had partial information on their piece of paper and they had to find out who had the rest of the information. So it takes a good idea, the most cognitively demanding activities still remain with people. You can also ask ChatGPT, but the output is not always of high quality, in terms of content, such an answer is often about nothing.” (respondent 4)

“An artificial intelligence will significantly save time in administrative tasks.” (respondent 17)

Respondents also perceive artificial intelligence as a great tool in preparing for differentiated teaching, where the chatbot is able to create graded tasks.

“You can turn a chatbot into an assistant, as it is able to generate a lesson, depending on what the teacher wants to discuss. In addition, he can suggest to the teacher, for example, three variants of how the subject matter can be discussed. It makes the teacher’s work fantastically easier, leads to greater efficiency and, moreover, does not spend so much time on preparations.” (respondent 4)

“She also generated questions about the field ecosystem for the 4th grade, then I had it modified for weaker students and for gifted students, and it’s good!” (Respondent 5)

“As part of differentiated teaching, I work with pupils with AI tools such as GoogleLens, ChatGPT or Duolingo.” (respondent 19)

As part of the research, it was found that teachers believe that the chatbot can also be a great helper for beginning teachers, which can provide them with many ideas for teaching, help them create teaching materials that are appropriate for the age of the students. The chatbot can show the teacher how to explain the subject matter and concepts to students in a comprehensible and age-appropriate manner. It can offer teachers various tasks for pupils on the topic of the lesson.

“It can be a great helper for beginning teachers, because it can show the teacher how he can explain different concepts to students of different ages, which many times a beginning teacher does not know, he fumbles, he does not know how to present the given things in a comprehensible manner, appropriate to the age of the students.” (respondent 16)

5. How do Polish Primary and Secondary School Teachers Perceive the Implementation of Artificial Intelligence in Schools? – the Results of the Research Investigation

5.1. Teachers are Poorly Informed about Artificial Intelligence

Many Polish teachers, like their Czech colleagues, struggle with their own unpreparedness for working with this technology.

“Teachers work with artificial intelligence very little, they do not know how to use it properly” (respondent 14)

Polish teachers also feel that they do not receive sufficient support and training in this area. But compared to their Czech colleagues, they also want to have the opportunity to publicly discuss their role as a teacher in connection with the introduction of artificial intelligence into schools.

“I am not able to use artificial intelligence in my classes on a daily basis, I would need training in this area.” (respondent 18)

“Pupils are better at using chatbot than me, I would need some training in this area to keep up with the times.” (respondent 16)

“We would need courses, seminars or webinars to show us how we can use artificial intelligence to make our work more efficient.” (respondent 15)

“I see the problem primarily in the fact that we teachers are poorly informed about artificial intelligence. Teachers don’t even know that there are some discussions about artificial intelligence that could replace teachers in routine activities, and that’s because no one invites them to such a discussion.” (respondent 20)

5.2. Artificial Intelligence as an Aid to Teachers

Polish teachers are not afraid of artificial intelligence, on the contrary, they try to use it, because they see it as a tool that can greatly help teachers in the planning and implementation of teaching, replace them in routine activities, in administrative tasks, when correcting tests, etc. They see it as a tool which will help them reduce their workload and save time. So they see it as a tool that will help make their work more efficient.

„I would like it if artificial intelligence replaced me in routine activities, for example correcting papers.” (respondent 1)

“I use artificial intelligence to generate images.” (respondent 8)

An artificial intelligence helps me create different texts, for example relaxing fairy tales, which I use in teaching. (respondent 11)

“I have already used the chatbot several times when preparing for an English language lesson. Once the chatbot generated various games for me, which I then used in my teaching. Other times simple children’s songs on the given topic.” (respondent 6)

“It is necessary to realize that technology does not harm us, on the contrary, it helps us, makes our work easier.” (respondent 17)

Polish teachers realize that if they do not have to deal with routine tasks, which are often time-consuming, they will have much more time for what is really important, direct work with pupils.

“If artificial intelligence takes over some routine tasks for teachers, teachers will have more time for their students and will be able to pay more individual attention to them, there will be more opportunities for personalized learning, for individual work with specific students.” (respondent 2)

“The teacher will no longer have to perform various routine tasks, such as correcting papers and tests or various other administrative tasks, this role can easily be performed by robots. Thus, teachers will have more time that they can devote to the creative part of their work, interaction with pupils, direct work with pupils.” (respondent 12)

Some teachers are also using artificial intelligence tools to enhance their teaching.

“Pupils enjoy assigning tasks in which they have to work with artificial intelligence.” (respondent 13)

5.3. Artificial Intelligence will Completely Change the Education System

Teachers realize that with the introduction of AI in schools, the entire education system will change, the role of the teacher will change, which will be more of a mentor, a guide, not the one who transmits information, but the one who teaches students to search for information, analyze it, critically to think, to work creatively and independently.

“The advent of artificial intelligence will change the role of the teacher, the role of the teacher is already changing. A teacher must be a guide to the world, not one who merely reproduces information. The teacher must also be a guide who can introduce students to how they can most effectively use various technologies, including chatbots. The student needs a different teacher than before, he especially needs a coach, a mentor.” (respondent 1)

“However, we must teach students to think critically, to critically accept what artificial intelligence presents them, because it does not always generate true data. We have to teach students that they can use artificial intelligence as a tool, but that they can’t rely on it completely, it can’t replace them, it can’t replace their work. They have to verify what the artificial intelligence has generated, they have

to introduce creative elements, it is not possible to take only what the artificial intelligence has generated, it can only be used as a basis, as a research with which I will continue to work, to which they will bring their potential.” (respondent 4)

Polish teachers, just like Czech teachers, are aware that along with the development of the use of artificial intelligence in schools and among pupils, they will have to approach homework in a completely different way, assign pupils other types of homework, other types of independent work.

New technologies in the form of artificial intelligence enable interactive and personalized education which must also be reflected in the types of tasks and independent work that teachers assign to students. Tasks that support critical thinking and creativity, such as various projects, must be more widely promoted. As artificial intelligence proves to be a great helper in the creation of graded tasks, homework or other independent work can also be more personalized to better match the level of a particular student.

“With the advent of artificial intelligence in schools, we will also have to assign different independent work and homework to students than before. It must be one that the chatbot will not generate for them, that will require creativity, originality, independent thinking from them.” (respondent 3)

“Artificial intelligence will lead us to assign graded tasks, in this way we will avoid cheating and, moreover, we will adapt the teaching to the needs of a specific student. Today, a chatbot can already help us with graded tasks.” (respondent 6)

“Perhaps it will force some teachers to reconsider assigning what they consider to be creative homework such as homework reports or presentations.” (respondent 11)

“It can write essays, homework reports one must realize that nowadays essays and reports are a relic.” (respondent 13)

“Maybe it will speed up the transition from thoughtlessly copying from Wikipedia to thinking in context.” (respondent 14)

“Examination should focus on problem-solving skills rather than mere memorization.” (respondent 16)

Compared to Czech teachers, however, their Polish colleagues are not worried that artificial intelligence will deprive them of their jobs.

“Artificial intelligence will certainly change our entire education system, but it certainly cannot and will not be able to replace a living person, certainly not in education. A robot will never replace a live person when it comes to working with children. He lacks that humanity, children need a living teacher. The school as an institution will not disappear and the teachers will certainly not lose their jobs, but their work will change, their work will be completely different.” (respondent 5)

“Today’s teacher realizes that he will have to greatly expand his professional knowledge and didactic knowledge and skills to cope with the emerging demands, to maintain a valuable dialogue with the inquisitive student for whom AI is becoming a natural part of life.” (respondent 19)

Polish teachers believe that they will not lose their jobs themselves, as artificial intelligence will not be able to replace them.

“Teaching is not just about presenting the learning material. The teacher must have a lively discussion with the pupils, conveying information to them in a form that they are able to understand. And only a man can do that.” (respondent 11)

“Artificial intelligence lacks creativity, human intuition, emotional intelligence, therefore it can never replace a living person.” (respondent 10)

Polish teachers think that it will be able to replace teaching assistants to some extent, whose number, according to Polish teachers, will decrease with the development of the use of artificial intelligence in schools.

“What will change in education will be the number of teaching assistants. If we start to fully use artificial intelligence and if that tool develops and improves, such a number of teaching assistants will no longer be needed. Artificial intelligence will become the best teacher’s assistant.” (respondent 9)

“The work of teaching assistants can be partially or completely represented by artificial intelligence.” (respondent 8)

5.4. Artificial Intelligence has its Limits

Polish teachers are more aware of the limits of artificial intelligence and chatbots when it comes to helping them prepare for class. They perceive that the chatbot is a robot, it lacks creativity. They appreciate the chatbot as a helper that is able to inspire the teacher, show him good ideas, generate a song or a poem, but is not able to create a well-structured, thought-out, original preparation for the lesson. “A chatbot is just a tool that works with algorithms, it’s not creative. Therefore, he can generate songs and poems, but in my opinion he is not able to create a really successful preparation for teaching, his preparations are not very imaginative, they lack something. You can use them as inspiration, but you can’t teach purely according to them. A chatbot cannot replace a live person.” (respondent 3)

“In order to be able to prepare well for a lesson, you must have at least minimal knowledge of pedagogical psychology, didactics, pedagogy. And you also have to prepare the lesson so that it meets the needs of your students. And a chatbot is not capable of that. A well-structured, thought-out, original preparation for a lesson, which also fully meets the needs of your students, cannot be created by a chatbot. On the other hand, if you only expect the chatbot to help you plan your lesson, give you ideas, then it’s a really good helper.” (respondent 5).

“As an English language teacher in the 1st grade of elementary school, I have already read the statements of several teachers on the Internet who claim that a chatbot is able to suggest preparation for a lesson. I also wanted to try it. But I was very disappointed with the chatbot’s response. What he suggested didn’t strike me as entertaining, nothing that would interest children. A chatbot cannot think through

several aspects as we teachers do when preparing lessons for children. They do not think about the educational goal, the specific children for whom we prepare the teaching. The chatbot disappointed me in this respect, I expected more from it. However, it can give us a good idea.” (respondent 6)

Teachers realize that artificial intelligence often makes mistakes. “Artificial intelligence sometimes generates text based on a prompt that contains factual errors or artificial intelligence-invented data.” (respondent 7)

Conclusion

Presented research study focuses on the question of the introduction of artificial intelligence in Czech and Polish schools, the readiness of Polish and Czech teachers to use artificial intelligence in schools.

The aim of the research study was to examine the subjective feelings of Polish and Czech teachers regarding the introduction of artificial intelligence in school. The partial goal of the research study was to find out whether there is a difference between the views of Czech and Polish teachers on the introduction of the use of artificial intelligence in schools.

To achieve the research goal, the method of semi-structured interviews with primary and secondary school teachers was used.

In the search for an answer to RQ1 – “Czech/Polish teachers concerned about the introduction of artificial intelligence into schools?” it was found that many Czech and Polish teachers are struggling with their own unpreparedness to work with this technology. Polish teachers, similarly to their Czech colleagues, feel that they do not receive sufficient support, training and education in this area. But Polish teachers, compared to their Czech colleagues, also want to have the opportunity to publicly discuss their role as teachers in connection with the introduction of artificial intelligence into schools.

Czech teachers fear the introduction of artificial intelligence and its use in education. Above all, that students will “abuse” AI to cheat and plagiarize. They believe that the use of artificial intelligence will lead to the suppression of their natural intelligence, that they will begin to rely entirely on artificial intelligence for solving tasks and completing assignments. This phenomenon was not detected among Polish teachers.

In the search for an answer to RQ3 – “Do Czech/Polish teachers have experience with the use of artificial intelligence? What experience do Czech/Polish teachers have with artificial intelligence?” it was found that Polish teacher rather perceived artificial intelligence as a help for teachers, respondents from the ranks of Polish teachers already had their first experience with the use of artificial

intelligence. Among Czech teachers, there are also those who work with chatbots and perceive them as a tool that helps them reduce their workload and make their work more efficient.

In the search for an answer to RQ2 – “Do Czech/Polish teachers see artificial intelligence as a tool that will help them?” it was found that, compared to Czech teachers, Polish teachers are more aware of the limits of artificial intelligence and chatbots when it comes to helping them prepare for class. They perceive that the chatbot is a robot, it lacks creativity. They appreciate the chatbot as a helper that is able to inspire the teacher, show them good ideas, generate a song or a poem, but is not able to create a well-structured, thought-out, original preparation for the lesson. Although Czech teachers believe that the chatbot is not able to represent them in more cognitively demanding activities, they consider the preparations for lessons, exercises, test questions or tasks generated by the chatbot to be successful. Most Czech teachers see the introduction of artificial intelligence in schools as inevitable and realize that their task is to teach pupils to use AI effectively. Czech teachers are aware that their current task is to teach pupils to use AI as a normal tool, to explain to them the risks and pitfalls of using AI.

Also, Polish teachers perceive that with the advent of artificial intelligence, the role of the teacher is changing, the teacher is expected to be a guide for the student, who also learns about the effective use of artificial intelligence. Compared to Czech teachers, Polish teachers specify even more how the role of the teacher will change with the development of the use of artificial intelligence in schools. In their opinion, the teacher will be more of a mentor, a guide, not the one who transmits information, but the one who teaches students to search for information, analyze it, think critically, work creatively and independently. Teachers, both Czech and Polish, are also aware that the teaching system will also have to change with the arrival of AI in schools. Pupils will need to be assigned different types of tasks than before, i.e. ones that AI will not create for them. Among Czech teachers, we also encounter fears of teachers in connection with the fact that they could be replaced by artificial intelligence, that they would lose their jobs. Their Polish colleagues are not worried about that. Polish teachers believe that they will not lose their jobs themselves, as artificial intelligence will not be able to replace them, but they think that it will be able to replace teaching assistants to some extent, whose number, according to Polish teachers, will decrease as the use of artificial intelligence in schools develops.

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Postawy czeskich i polskich nauczycieli wobec wykorzystania sztucznej inteligencji w szkołach

Streszczenie

Celem badania było zbadanie subiektywnych odczuć polskich i czeskich nauczycieli dotyczących wprowadzania sztucznej inteligencji do szkół. Celem szczegółowym badania było ustalenie, czy istnieje różnica między poglądami czeskich i polskich nauczycieli na temat wprowadzania sztucznej inteligencji do szkół. Aby osiągnąć cel badawczy, zdecydowaliśmy się na zastosowanie badań jakościowych, zastosowano metodę wywiadu półstrukturyzowanego z czeskimi i polskimi nauczycielami szkół podstawowych i średnich.

W ramach badań ustalono, że czescy nauczyciele obawiają się pojawienia się sztucznej inteligencji i jej wykorzystania w edukacji, zwłaszcza tego, że uczniowie będą „nadużywać” SI do oszukiwania i plagiatu. Zjawiska tego nie zaobserwowano wśród polskich nauczycieli. Postrzegali oni raczej sztuczną inteligencję jako pomoc dla nauczycieli; polscy nauczyciele mieli już pierwsze doświadczenia z wykorzystaniem sztucznej inteligencji. Wśród czeskich nauczycieli są również tacy, którzy pracują z chatbotami i postrzegają je jako narzędzie, które pomaga im zmniejszyć obciążenie pracą i uczynić swoją pracę bardziej efektywną. Większość czeskich nauczycieli uważa wprowadzenie sztucznej inteligencji do szkół za nieuniknione i zdaje sobie sprawę, że ich zadaniem jest nauczenie uczniów skutecznego korzystania z SI. Również polscy nauczyciele dostrzegają, że wraz z pojawieniem się sztucznej inteligencji zmienia się rola nauczyciela; oczekuje się od niego, że będzie przewodnikiem dla ucznia, a także nauczy skutecznego korzystania ze sztucznej inteligencji. Nauczyciele, zarówno czescy, jak i polscy, są również świadomi, że system edukacji będzie musiał się zmienić wraz z pojawieniem się SI w szkołach. Uczniom trzeba będzie przydzielić inne typy zadań niż dotychczas, tzn. takie, których sztuczna inteligencja nie będzie dla nich tworzyć.

Sł o w a k l u c z o w e: sztuczna inteligencja, chatbot, szkoły, nauczyciele, gotowość, Polska, Czechy

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Actitudes del profesorado checo y polaco hacia el uso de la inteligencia artificial en las escuelas

R e s u m e n

El objetivo del estudio fue investigar los sentimientos subjetivos de los profesores polacos y checos con respecto a la introducción de la inteligencia artificial en las escuelas. El objetivo específico del estudio fue determinar si existe una diferencia entre las opiniones de los profesores checos y polacos sobre la introducción de la inteligencia artificial en las escuelas. Para lograr el objetivo de la investigación, decidimos utilizar una investigación cualitativa; se utilizó el método de entrevistas semiestructuradas con profesores de escuelas primarias y secundarias checas y polacas.

El estudio reveló que los profesores checos están preocupados por la aparición de la inteligencia artificial y su uso en la educación, especialmente porque los estudiantes “abusarán” de la IA para hacer trampa y plagiar. Este fenómeno no se ha observado entre los profesores polacos. Tendían a ver la IA como una ayuda para los profesores; Los profesores polacos ya han tenido sus primeras

experiencias con el uso de la inteligencia artificial. Entre los profesores checos también hay quienes trabajan con chatbots y los ven como una herramienta que les ayuda a reducir su carga de trabajo y hacer su trabajo más efectivo. La mayoría de los profesores checos consideran que la introducción de la inteligencia artificial en las escuelas es inevitable y son conscientes de que su tarea es enseñar a los estudiantes a utilizar la IA de forma eficaz. Los profesores polacos también observan que con la aparición de la inteligencia artificial el papel del profesor está cambiando; Se espera que guíe al estudiante y le enseñe cómo utilizar la inteligencia artificial de manera efectiva. Los profesores, tanto checos como polacos, también son conscientes de que el sistema educativo tendrá que cambiar con la aparición de la IA en las escuelas. A los estudiantes habrá que asignarles tipos de tareas diferentes a las anteriores, es decir, aquellas que la inteligencia artificial no creará para ellos.

Palabras clave: universidad abierta, educación a distancia, sistema electrónico, aprendizaje permanente, modelos organizativos de la educación a distancia

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Отношение чешских и польских учителей к использованию искусственного интеллекта в школах

Аннотация

Целью исследования было изучение субъективных ощущений польских и чешских учителей относительно внедрения искусственного интеллекта в школы. Конкретной целью исследования было определить, существует ли разница во взглядах чешских и польских учителей на внедрение искусственного интеллекта в школы. Для достижения цели исследования мы решили использовать качественное исследование, метод полуструктурированного интервью был использован с чешскими и польскими учителями начальных и средних школ.

Исследование показало, что чешские учителя обеспокоены появлением искусственного интеллекта и его использованием в образовании, особенно тем, что учащиеся будут «злоупотреблять» ИИ для списывания и плагиата. Среди польских учителей такое явление не наблюдалось. Они были склонны рассматривать ИИ как помощника учителям; Польские учителя уже получили первый опыт использования искусственного интеллекта. Среди чешских учителей также есть те, кто работает с чат-ботами и видит в них инструмент, помогающий им снизить нагрузку и сделать свою работу более эффективной. Большинство чешских учителей считают внедрение искусственного интеллекта в школы неизбежным и понимают, что их задача — научить учеников эффективно использовать ИИ. Польские учителя также замечают, что с появлением искусственного интеллекта роль учителя меняется; Ожидается, что он будет направлять студентов и обучать их эффективному использованию искусственного интеллекта. Учителя, как чешские, так и польские, также понимают, что с появлением ИИ в школах система образования должна будет измениться. Студентам необходимо будет поручать другие типы задач, чем раньше, то есть те, которые искусственный интеллект не будет создавать для них.

Ключевые слова: искусственный интеллект, чат-бот, школы, учителя, готовность, Польша, Чехия