

Article

“Is AI Inevitable?” Development of Attitudes and Practices of Czech Teachers Between 2023 and 2025

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Abstract

The rapid expansion of generative artificial intelligence (AI) has significantly transformed educational practice worldwide. While early research documented teachers' initial reactions to AI tools, less is known about how their attitudes, competencies, and professional practices evolve once these technologies become normalized in schools. This study addresses this gap by examining the development of Czech primary and secondary school teachers' attitudes and practices related to AI in 2025 and comparing them with findings from 2023. A quantitative survey analyzed teachers' frequency and purposes of AI use, perceived readiness, institutional support, and experiences with student misuse. The results indicate a substantial acceleration in AI adoption, increased participation in professional development, and a shift from experimental exploration toward more structured and pedagogically grounded use. At the same time, ethical concerns and issues related to student misuse remain significant. The findings highlight the transition from uncertainty to pragmatic integration and underline the importance of systematic methodological support and clear ethical frameworks for responsible AI implementation in education.

Keywords: artificial intelligence; teachers; attitudes towards AI; education; misuse of AI; comparative research

1. Introduction

The rise of generative artificial intelligence (AI) has fundamentally transformed the educational environment in recent years. Tools such as ChatGPT, Copilot, Gemini, and Midjourney have become part of the everyday lives of students and teachers, and their availability and ability to produce texts, images, or test questions in real time have sparked lively discussion in the Czech education system. While part of the professional community sees AI as an opportunity for individualized learning, more effective preparation and the development of critical thinking, others point out the risks associated with ethical issues, disinformation, or an increase in dishonest behavior of students.

The Czech Republic represents a Central European country with a well-developed digital infrastructure and high levels of internet penetration among schools and households. According to national and European statistical reports (e.g., Eurostat, OECD Digital Education Outlook), Czech schools demonstrate ICT integration levels comparable to

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many EU member states, and digital competence development has been systematically supported through national educational strategies.

The teachers participating in this study were recruited from all regions of the country, including both urban and rural areas. Therefore, while the study focuses on a national context, the structural characteristics of the Czech educational system and its level of digitalization make the findings analytically comparable to broader European trends.

In the Czech Republic, one of the first comprehensive studies on this topic was conducted by (Kopecký et al., 2023), who analyzed the attitudes and experiences of more than two thousand teachers. Their findings indicated that many teachers recognized the potential usefulness of AI, but a substantial proportion also expressed concerns about its ethical implications and their own preparedness to use it effectively in the classroom. The study highlighted the lack of systematic training and the need for new didactic competencies related to AI integration.

Since the publication of this study, there has been a significant shift in both technological development and the institutional and social context. Generative models have become more accessible, schools have begun to experiment with their use, and the first methodological materials and courses for teachers are being created. At the same time, attitudes have also changed—from initial fascination and concerns to the search for realistic ways to integrate AI into teaching. It is therefore appropriate to examine how teachers' practices, attitudes, and needs have changed in 2025 and whether the trend of gradual acceptance and professionalization of work with AI in education can be confirmed.

The current study aims to analyze the use, attitudes, and experiences of primary and secondary school teachers in the Czech Republic in 2025 and compare them with earlier findings by (Kopecký et al., 2023). It focuses on how often and for what purposes teachers use AI, what attitudes they have towards its benefits and risks, to what extent they feel prepared for its implementation, and what factors influence their attitudes. It also includes an analysis of students' perceptions of AI misuse and the identification of teachers' needs for further support.

Contribution of the Study

This study contributes to the existing body of research in several ways. First, it provides one of the first comparative analyses capturing the transition from the initial exploratory phase of generative AI adoption (2023) to its normalization in school practice (2025). Second, it moves beyond measuring attitudes alone by examining the interconnection between teachers' competencies, institutional support, professional development, and experiences with student misuse. Third, the study offers empirical evidence from the Czech educational context, which represents a digitally developed Central European country with systemic educational structures comparable to many EU systems. By mapping both attitudinal and practical dimensions of AI integration, the research contributes to understanding how AI becomes embedded in everyday pedagogical practice rather than remaining a disruptive innovation.

The following research questions (RQ) are based on these objectives:

RQ1: How do Czech primary and secondary school teachers assess their level of knowledge and skills in the field of AI in 2025, and what attitudes do they have towards it?

RQ2: How often and for what purposes do teachers use AI tools in preparation and teaching, and how have these methods of use changed since 2023?

RQ3: What barriers and reasons for not using AI do teachers state, and how have their nature changed compared to 2023?

RQ4: What experiences do teachers have with the misuse of AI tools by students, and how do they reflect this issue in their pedagogical practice?

RQ5: How do teachers perceive the impacts of AI on their professional role, the need for new skills, and institutional support for its integration into teaching?

2. Literature Review

2.1. AI in Education: Opportunities and Challenges

The development of large language models (LLMs) such as ChatGPT, Copilot, and Gemini represents one of the most dynamic trends in current educational research. Their potential to enrich learning processes, personalize education, and support teachers in their pedagogical work is considerable. However, the integration of AI into teaching must be done cautiously and critically—with awareness of the possible limitations, biases, and risks that these systems bring. The meaningful use of AI, therefore, requires strict standards in the areas of privacy, security, sustainability, and ethics, as well as continuous supervision and reflection by the teacher, who remains a key factor in the educational process (Kasneci et al., 2023).

The most common applications of AI in education include personalized learning, intelligent tutoring systems, assessment automation, and teacher-student collaboration, which can contribute to improving learning outcomes, teaching effectiveness, and equitable access to quality education. While AI has the potential to significantly impact education, it is important to be aware of the risks of its misuse. To address the challenges posed by the rapid adoption of these technologies, education in AI literacy and ethics must become part of the curriculum. This allows educators and policymakers to harness the benefits of AI to create inclusive, equitable, and effective learning environments that meet the diverse needs of 21st century learners (Celik et al., 2022; Kamalov et al., 2023).

2.2. Teachers' Roles, Competencies, and Attitudes Toward AI

A number of studies point to the need to educate students about artificial intelligence from primary school onwards. Six categories of teacher conceptions were identified: technology bridging, knowledge delivery, interest stimulation, ethics establishment, capability cultivation, and intellectual development (Yau et al., 2023). Teachers play a key role in deciding whether and how technology will be integrated into teaching. Their attitudes, knowledge, and skills fundamentally influence the extent and quality of AI use in education.

There is a demonstrable relationship between the level of teachers' competence and their attitude towards AI. Teachers who are better prepared for AI show lower levels of concern, are more innovative, and are more satisfied in their profession (Viberg et al., 2025; Wang et al., 2023). Research confirms that AI readiness and adoption rates significantly predict the impact of AI on learning, with teachers' beliefs about its educational benefits being the strongest predictor of positive impact. Research recommendations include developing readiness, highlighting the benefits of AI for education, and removing structural barriers to its adoption (Efe & Aslan Efe, 2025).

AI is now being integrated into school education worldwide, and the literature shows two main groups of approaches: learning experience and theoretical perspective. The first focuses on students' experiences with technical, conceptual, and application skills; the second seeks to create models and frameworks for the development of AI literacy (Casal-Otero et al., 2023).

2.3. Differences Across Educational Levels and Emerging Competence Frameworks

There are significant differences in confidence and knowledge in the field of AI among teachers, especially between different levels of education. Primary school teachers call for basic skills and orientation in AI issues, while higher-level teachers demand

methodological strategies, tools for effective use of AI, and systems for detecting unethical student behavior (Chen et al., 2025; Ding et al., 2024; Traga Philippakos & Rocconi, 2025). What is common to all school levels is that teachers feel a strong need for training in the field of artificial intelligence and its pedagogical integration.

As AI becomes increasingly important, new professional skills are required of teachers, while the need to bridge the gap between research and practical use of AI in education remains (Velandar et al., 2024). For this reason, various tools are being created to measure teacher competence, such as the Teacher AI Competence Self-Efficacy (TAICS), which includes six dimensions: AI knowledge, AI pedagogy, AI assessments, AI ethics, human-centered education, and professional engagement (Chiu et al., 2025). Another study proposes six areas of competence: theoretical knowledge about AI, legal framework and ethics, implications of AI, attitude toward AI, teaching and learning with AI, and ongoing professionalization (Delcker et al., 2025).

2.4. Teacher Training, Professional Development, and Pedagogical Models

At the same time, new forms of AI education are emerging, such as the hybrid-flexible (HyFlex) model, which combines the benefits of face-to-face and online learning. This flexibility has been shown to increase teacher engagement in courses, contribute to better learning outcomes, and enable the reuse of the same teaching materials for teachers from different backgrounds. Research findings highlight the importance of training that deepens understanding of AI, fosters positive attitudes, and increases teachers' confidence in the technology. For AI integration into education to be sustainable, it is also necessary to consider the psychological factors that influence teachers' attitudes (Kazmaci et al., 2025).

Experts are therefore calling for teacher-centered, technology-centered education that goes beyond mere technical mastery and develops critical thinking and ethical reflection. At the same time, policymakers should support collaborative frameworks that position teachers as partners in designing AI integration, rather than passive recipients of instructions from above (Tripathi et al., 2025).

AI-focused professional development programs have so far focused primarily on elementary and secondary school teachers, most often in STEM disciplines, and use proprietary, researcher-developed tools implemented in a blended learning format (Li et al. 2025). Although interdisciplinary approaches and the use of publicly available AI tools are emerging, these practices are still rather the exception. Research recommends focusing teacher education in four directions: (1) selecting age-appropriate content, (2) developing innovative AI-specific didactic approaches, (3) strengthening teachers' confidence in AI, and (4) providing practical experience with the use of AI in teaching (Yue et al., 2024).

2.5. Ethical and Professional Dimensions of AI Integration

The introduction of AI into education raises a number of ethical questions. The most frequently discussed principles include transparency and accountability, sustainability and proportionality, privacy, security, and inclusivity (Nguyen et al., 2023). Research shows that teachers need to develop three competencies: (1) knowledge—awareness of the ethics and limitations of AI, socio-political contexts, and human responsibility; (2) skills—including transparency, critical analysis of AI, and culturally sensitive pedagogy; (3) attitudinal—expressing sensitivity to ethical issues, critical thinking, and an inclusive approach (Tagare et al., 2025). These competencies can form the basis for preparing teachers to use technology responsibly and ethically.

Artificial intelligence is also affecting the very role of teachers as leaders in the educational process. Research suggests that AI can empower teachers—through tools for personalizing instruction, automating administration, and developing curriculum—but it can also weaken aspects of their work as technology takes over some of the decision-

making (Ghamrawi et al., 2024). Teachers' pedagogical strategies and interactions with AI systems are closely related to their perceptions of the role of AI in education; therefore, it is important to reflect on teachers' diverse approaches when designing professional development programs (Shi et al., 2024).

The roles of teachers and AI can overlap in the educational process in various ways. Qualitative analyses identify four roles for AI (partner, content provider, teaching assistant, and evaluator) and three key roles for teachers (unifying diverse resources through pedagogical judgment, actively engaging students in research, and fostering ethical literacy in AI) (Abd-alrazaq et al., 2023; Kim, 2024a). Teachers themselves describe three stages of development in their relationship with AI: (1) passive recipients, (2) active users, and (3) constructive partners (Kim, 2024b). This development indicates a shift from instrumental use of technology to collaborative partnerships based on professional expertise, reflection, and ethical responsibility.

2.6. AI Literacy and the Preparation of Future Teachers

Developing AI literacy is also essential in preparing future educators. Research shows that overreliance on AI by students and teachers can negatively impact their ability to solve problems, think critically and creatively, and collaborate effectively (Zhang et al., 2025). Therefore, the integration of AI into the training of future teachers must be balanced—it should support understanding of the principles of AI functioning, develop skills in its didactic use, but at the same time strengthen human competencies that technology cannot replace. At the same time, teaching packages using AI are being implemented into school programs, especially in the field of STEM fields, the impacts of which are important for curriculum creation (Heng et al., 2023; Yau et al., 2023).

2.7. Barriers to AI Implementation and Teachers' Needs

Empirical research from recent years shows that, although teachers' awareness and positive attitudes towards AI are increasing significantly, practical experiences with its integration into teaching remain uneven (Chen et al., 2025; Ding et al., 2024; Efe & Aslan Efe, 2025). Most teachers use AI tools primarily for lesson preparation, material creation, and administrative activities, while direct integration into the teaching process is still rather exceptional (Chen et al., 2025; Ding et al., 2024). Teachers report using generative tools primarily for information retrieval, test generation, writing assessment materials, and as a source of inspiration for classroom activities (Efe & Aslan Efe, 2025).

Experience from different educational contexts shows that the extent and manner of using AI depends on the technological background of the school, didactic support, and personal confidence of teachers. For example, a study (Tripathi et al., 2025) confirms that the most beneficial are examples of practice that connect specific subjects with the creation of tasks, assessment, and development of student competencies. Teachers thus become active designers of instruction, in which AI helps not only to automate routine tasks, but also to support creative and reflective learning.

At the same time, however, significant barriers to the full use of AI persist. The most common include a lack of methodological support, time constraints, and uncertainty about appropriate uses (Velandar et al., 2024; Yue et al., 2024). Teachers often declare that they lack specific examples and materials on how to incorporate AI tools into teaching in line with curricular goals (Kazmaci et al., 2025). Another barrier is the low level of trust in the accuracy and ethics of AI outputs, especially when working with generative models that can produce erroneous or biased information (Kasneci et al., 2023).

2.8. Toward Reflective and Responsible Practice

From a psychological point of view, concerns about the weakening of a teacher's professional autonomy and the change in their traditional role also play a significant role (Ghamrawi et al., 2024; Shi et al., 2024). Some educators worry that the frequent use of AI could lead to a decrease in the quality of human interaction and a loss of student creativity (Kim, 2024a; Tagare et al., 2025). Others, however, argue that AI helps foster discussions about ethics, critical thinking, and digital responsibility, which can enrich teaching (Abdalrazaq et al., 2023; Kim, 2024a).

Experience from professional development confirms that targeted training and support for peer collaboration significantly contribute to increasing teachers' self-confidence and expanding innovative forms of teaching using AI (Xiao et al., 2025). Effective educational programs focus not only on technical skills, but also on developing didactic and ethical competencies that enable teachers to use AI thoughtfully, critically, and in line with pedagogical goals (Delcker et al., 2025; Tagare et al., 2025).

These findings suggest that teachers' experiences with AI are evolving from experimentation to reflective and responsible practice. Successful integration of AI depends on a combination of methodological support, availability of tools, institutional culture, and teachers' personal beliefs about the benefits of the technology.

Artificial intelligence has become an integral part of education and is fundamentally transforming the professional role of teachers. Their readiness, attitudes, and competencies are key to the responsible and effective implementation of AI in teaching. Although research confirms the growing acceptance and positive attitude of teachers, challenges in the areas of ethics, methodological support and professional skills development persist. These facts underline the importance of empirical studies that map the development of teachers' attitudes and their experiences with AI in the Czech educational context.

To synthesize the main research streams relevant to the present study, Table 1 summarizes key themes, representative findings, and research gaps.

Table 1. Overview of key research themes on AI in education relevant to the present study.

Research Theme	Key Findings in the Literature	Representative Studies	Identified Gaps Addressed in This Study
Teachers' attitudes toward AI	Growing openness but persistent ethical concerns	(Viberg et al., 2025; Wang et al., 2023)	Need for longitudinal comparison after AI normalization
AI competencies and professional development	Training increases confidence and adoption	(Xiao et al., 2025; Yue et al., 2024)	Lack of comparative evidence over time
AI integration into teaching practice	AI used mainly for preparation rather than in-class instruction	(Efe & Aslan Efe, 2025; Tripathi et al., 2025)	Limited data on shift toward structured pedagogical use
Ethical concerns and student misuse	Concerns about misinformation and cheating	(Kasneci et al., 2023; Tagare et al., 2025)	Evolving nature of misuse in generative AI era
Institutional support and policy	School-level support predicts adoption	(Velandar et al., 2024)	Insufficient comparative national-level evidence

3. Methodology

3.1. Research Design

The research was conceived as a quantitative comparative study, the aim of which was to describe the current state of use of AI tools by Czech primary and secondary school teachers and compare it with the results of a previous survey by Kopecký et al. (2023). The study monitors both the frequency and purposes of using AI in teaching, as well as the attitudes, concerns, experiences, and needs of teachers in 2025. The emphasis was placed

on identifying factors that may influence teachers' readiness to integrate AI into teaching—in particular, support from school management, completed training, length of practice, accreditation, and gender. Methodologically, the research is based on conceptual frameworks used in previous studies on teachers' attitudes towards digital technologies and AI (Kopecký et al., 2023), and develops them towards current issues of generative AI in education. The overall structure of the comparative research design is presented in Figure 1. Detailed information can be seen on Supplementary S1–S10.

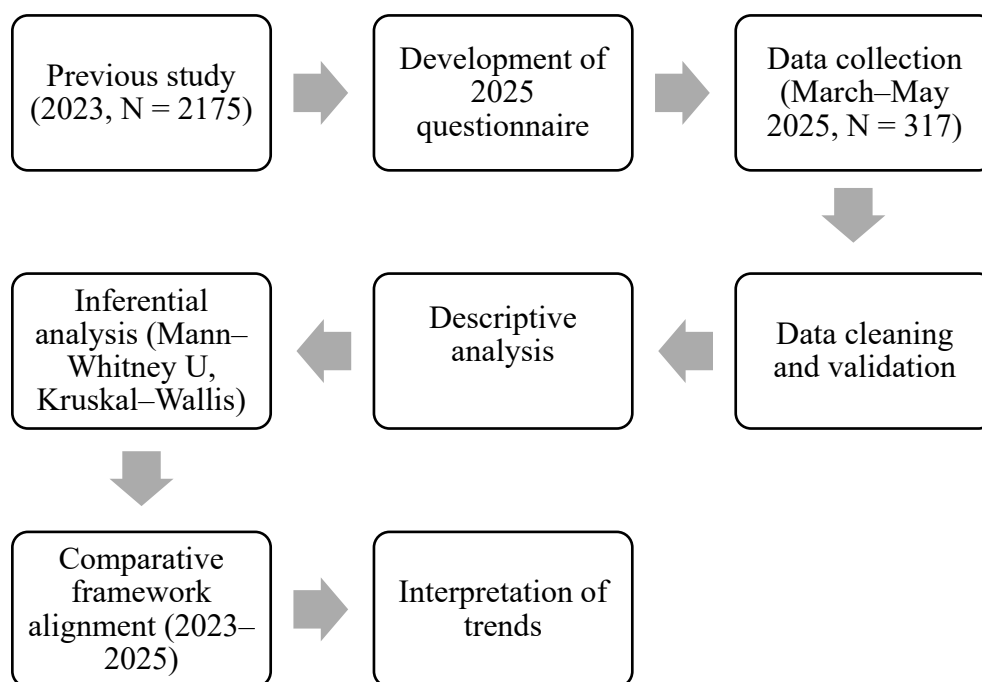


Figure 1. Research Design of the Comparative Study (2023–2025).

3.2. Research Tool

For the purposes of this study, an online questionnaire was created in the Google Forms environment, which was distributed among primary, secondary, and grammar schoolteachers in the Czech Republic through university networks, professional groups on social networks, and direct contacts of faculty schools. The questionnaire was anonymous, voluntary, and took approximately 10–15 min to complete. Participants were informed in advance about the purpose of the research and about data processing in accordance with the GDPR.

The questionnaire contained a total of 22 items and 19 attitude statements rated on a five-point Likert scale (1 = completely disagree, 5 = completely agree). The structure of the questionnaire was divided into thematic blocks:

1. Demographic data: age, gender, length of teaching experience, approval, type of school, and region.
2. Self-assessment of knowledge and attitudes towards AI: level of knowledge, personal approach, and experience with AI tools.
3. Experience with AI: tools used, frequency of use (in preparation, in teaching, in personal life), reasons for not using them.
4. Use of AI in the school context: purposes of use in lesson preparation, directly in the lesson, and forms of student involvement.
5. Abuse of AI by students: teachers' experiences with cheating cases, types of tasks, and tools.

6. Support and education needs: type of preferred support, training, and institutional background.
7. Attitudes towards AI: a set of statements reflecting benefits, risks, readiness, support from school management, perceived inevitability, and impact on the teaching profession.

S1: I am afraid of AI.

S2: The use of AI will lead to people becoming less intelligent.

S3: AI is positive for the future.

S4: AI can make the teacher's work easier and more effective.

S5: AI can reduce my administrative workload.

S6: School leadership should actively support AI education for teachers.

S7: The leadership of our school supports AI education for teachers.

S8: AI can help students better understand the subject matter.

S9: AI can help tailor education to each student's individual needs and abilities.

S10: AI can support the development of students' critical thinking.

S11: The integration of AI into education is inevitable.

S12: I feel prepared to implement AI in my teaching.

S13: Using AI in teaching requires specific technical skills.

S14: Using AI in teaching requires teachers to gain new didactic knowledge and skills.

S15: AI will change the teacher's job.

S16: I fear that using AI could replace some aspects of my work.

S17: I am concerned about the potential risks associated with AI (ethical issues, data protection, misinformation, etc.).

S18: Students use AI during homework preparation (not necessarily for cheating).

S19: Students use AI to cheat (e.g., copy answers).

The attitude statements were partly based, with the authors' consent, on the items of the study by Kopecký et al. (2023) in order to maintain the comparability of the results (S1–S3, S7, S11–S12, S14–S16, S19). Statements reflecting generative AI and institutional aspects were newly added. The study by Kopecký et al. (2023) was conducted between 25 April and 30 June 2023 and involved 2175 primary and secondary school teachers from across the Czech Republic (73% women, 26% men), with an average age of 46.7 years.

The questionnaire was developed based on a review of the current literature on teachers' attitudes toward AI, AI competencies, and AI integration in education (Delcker et al., 2025; Viberg et al., 2025; Yue et al., 2024). Selected items (S1–S3, S7, S11–S12, S14–S16, S19) were adapted with permission from Kopecký et al. (2023) to ensure longitudinal comparability. Newly developed items reflected emerging issues related to generative AI, institutional support, and ethical concerns identified in recent research. Content validity was established through expert review by three university specialists in educational technology and didactics, who assessed item clarity, relevance, and alignment with the study objectives. Minor wording adjustments were made based on their feedback. A pilot study (N = 10) was conducted with teachers from faculty schools to verify comprehensibility, logical flow, and estimated completion time. Based on pilot feedback, two items were slightly reformulated to improve clarity.

3.3. Data Analysis

Data collected via Google Forms were exported in CSV format and subsequently processed using IBM SPSS Statistics 25 for quantitative analysis. Data cleaning included the removal of duplicate entries, incomplete responses, and verification of response consistency. Descriptive statistics, reliability analyses, and non-parametric inferential tests (Mann–Whitney U and Kruskal–Wallis) were conducted in SPSS. Open-ended responses

were analyzed using qualitative content analysis. Coding was conducted manually by the research team following a two-step procedure (deductive coding based on categories from (Kopecký et al., 2023), and inductive identification of new themes). Disagreements were resolved through discussion until a consensus was reached. Qualitative responses were coded independently by two members of the research team. In the first phase, deductive categories based on Kopecký et al. (2023) were applied. In the second phase, inductive coding allowed the identification of new categories reflecting developments specific to 2025. Inter-coder agreement was assessed, and discrepancies were discussed until consensus was reached. This procedure enhanced the reliability and credibility of the qualitative categorization.

Frequencies and relative proportions were calculated for nominal and ordinal variables, and means (M), medians (Mdn), and standard deviations (SD) for scale variables. These indicators made it possible to capture the overall distribution of teachers' attitudes and identify basic trends in the data.

Attitudinal items formed by Likert scales were analyzed both individually and in thematic groups (e.g., positive aspects of AI, risks and concerns, professional readiness). Cronbach's α coefficient was calculated to verify their internal consistency. The average values of individual statements were further used to identify the main trends and to compare them with the results of the study by Kopecký et al. (2023).

The normality of the distribution of scale variables was verified by the Kolmogorov–Smirnov and Shapiro–Wilk tests, with all tested variables showing significant deviations from normal distribution ($p < 0.001$). For this reason, non-parametric statistical methods were chosen for inferential analysis, which are suitable for data with an ordinal scale and asymmetric distribution. The Mann–Whitney U test was used to compare two independent groups, while the Kruskal–Wallis test supplemented with Bonferroni correction was used to compare three or more groups. In addition to the significance level (p), the effect size (d or η^2) was also reported for all tests, which allows interpreting the practical strength of the differences found.

Open questions (e.g., listing specific AI tools, methods of use, or forms of AI abuse by students) were processed using the qualitative content analysis method. In the first phase, the answers were analyzed deductively, according to categories taken from the previous study by Kopecký et al. (2023). In the second phase, an inductive approach was used, which allowed the addition of new categories that reflected current trends in 2025.

In order to compare the results with the study by Kopecký et al. (2023), all thematically similar items were aligned into a comparative framework. This included categories such as AI use, training, attitudes, and concerns, AI misuse by students, and institutional support. This approach allowed us to track developments between 2023 and 2025 and identify key shifts in attitudes, competencies, and educational practices during the period when generative AI became a common part of pedagogical practice.

3.4. Data Collection and Research File

Data collection took place between 2 March and 8 May 2025. A total of 317 valid responses were obtained after eliminating duplicates and incomplete records. Respondents were represented from all regions of the Czech Republic, most from the Moravian-Silesian Region (28.7%) and Prague (23.7%). Respondents were represented from all regions of the Czech Republic, including both metropolitan areas (e.g., Prague, Brno, Ostrava) and smaller towns and rural regions. The sample consisted of experienced teachers with an average age of 45.5 years and an average length of teaching experience of 19.4 years. Women made up 74.1% of the sample, men 25.9%.

Most teachers worked at grammar schools (lower level 47%, upper level 60.9%), followed by teachers at lower secondary schools (28.1%) and vocational schools (14.5%), see

Figure 2. Since some teachers taught at 2 or more types of schools, the sum of partial percentages is higher than 100%.

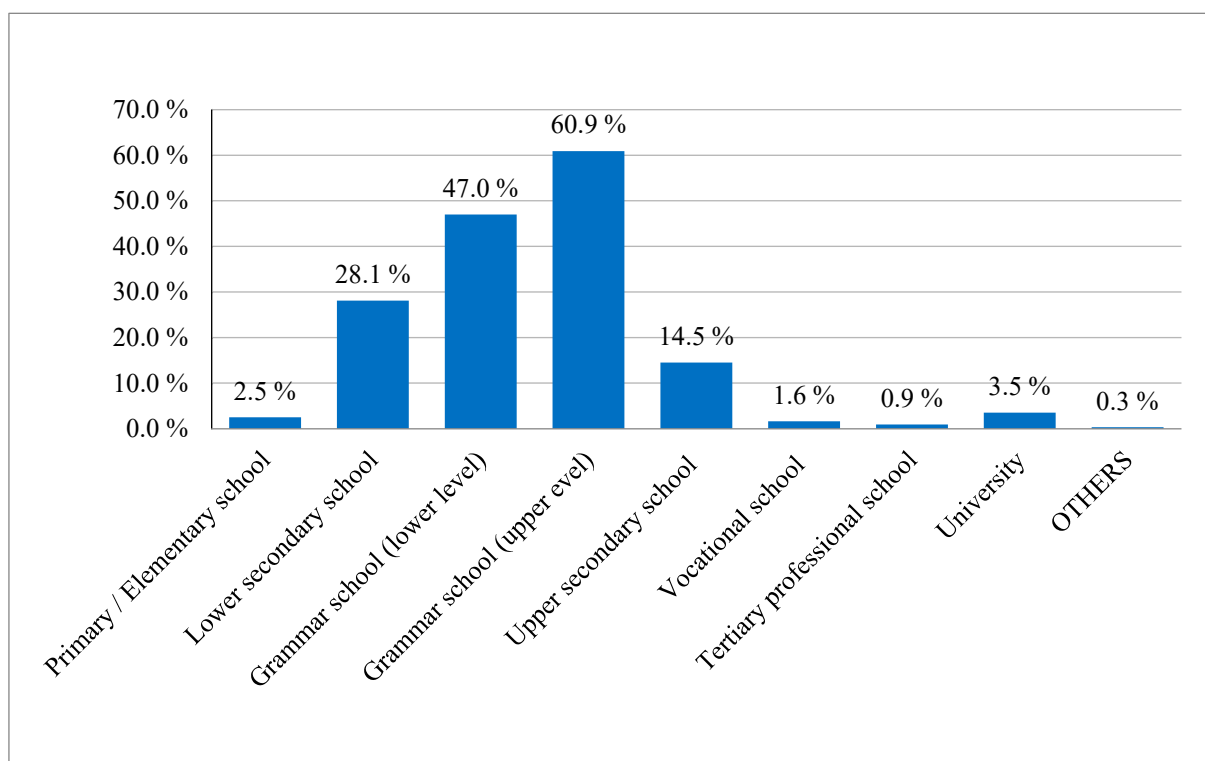


Figure 2. Distribution of teachers by school type, $N = 317$ (2025). Most respondents worked at grammar schools (47% lower level, 60.9% upper level), followed by lower secondary schools (28.1%) and vocational schools (14.5%). As some teachers taught at more than one school type, percentages exceed 100%.

4. Results

4.1. Self-Assessment of Teachers' Knowledge and Attitudes Towards AI

RQ1. How do Czech primary and secondary school teachers in 2025 assess their level of knowledge and skills in the field of AI, and what are their general attitudes towards it?

Most teachers in 2025 considered themselves users with at least basic experience with AI, see Figure 3. Only 10.7% identified as beginners, 38.8% as slightly advanced, and 35.6% as intermediate users. The group of advanced users accounted for 14.2%, while only 0.6% of respondents declared an expert level. Overall, it can be said that almost nine out of ten teachers have at least some user experience with AI, with the majority in the phase of developing skills and practical familiarity with AI tools.

Teachers' attitudes toward AI are predominantly positive, see Figure 4. Almost half of the respondents (44.5%) described themselves as open to new technologies, and another 31.2% reported being rather positive toward AI but still needing more information or experience for its full integration into teaching. A neutral stance was taken by 16.1% of respondents, while 7.3% were somewhat skeptical, and only 0.9% rejected the technology. These results indicate a high level of openness to innovation and a relatively low degree of concern about implementing AI in educational practice.

In the context of the results from 2023, when approximately a third of teachers declared concerns about AI and more than half did not feel prepared to use it, the current situation can be interpreted as a significant shift from the phase of uncertainty to practical acceptance. Teachers no longer perceive AI mainly as a potential threat or risk, but as a real working tool that can facilitate the preparation of lessons and expand pedagogical possibilities. This

development indicates a gradual technological adaptation of the school environment and the professionalization of work with AI in the Czech educational context.

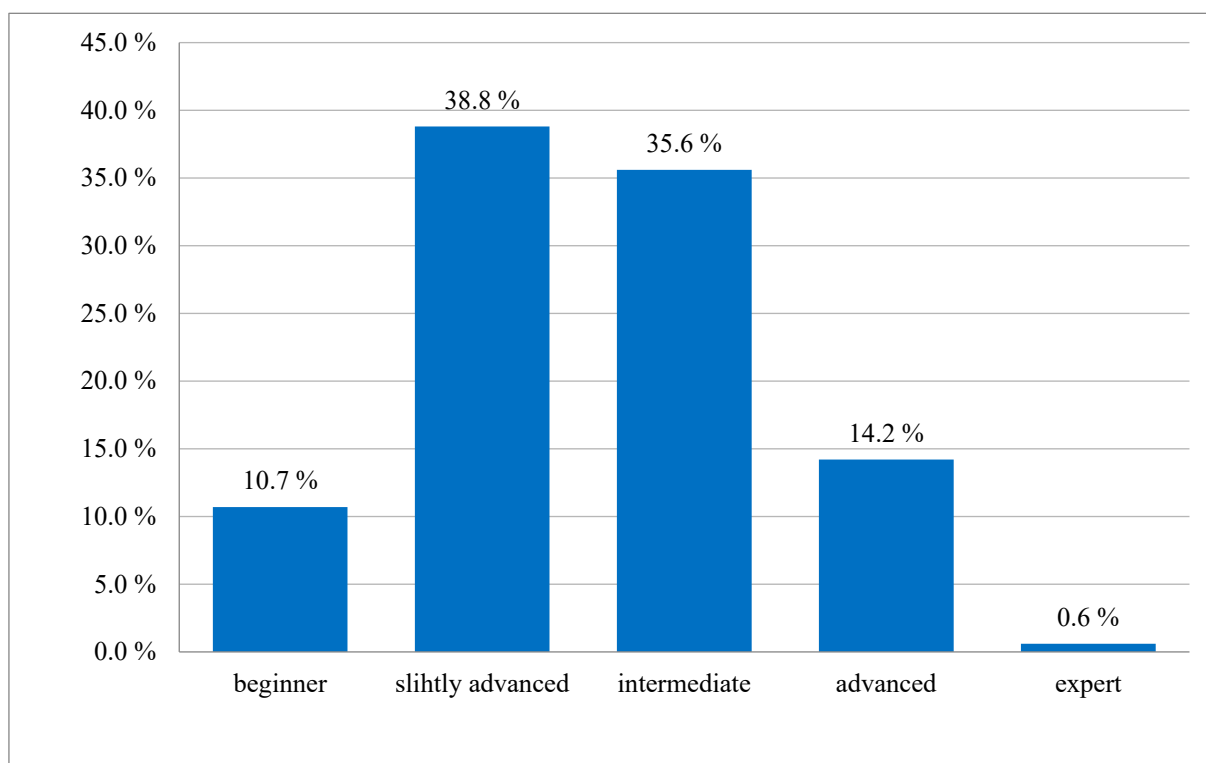


Figure 3. Teachers' self-assessed levels of experience with AI, $N = 317$ (2025). Nearly 90% of teachers reported at least basic experience with AI, with most identifying as slightly advanced or intermediate users.

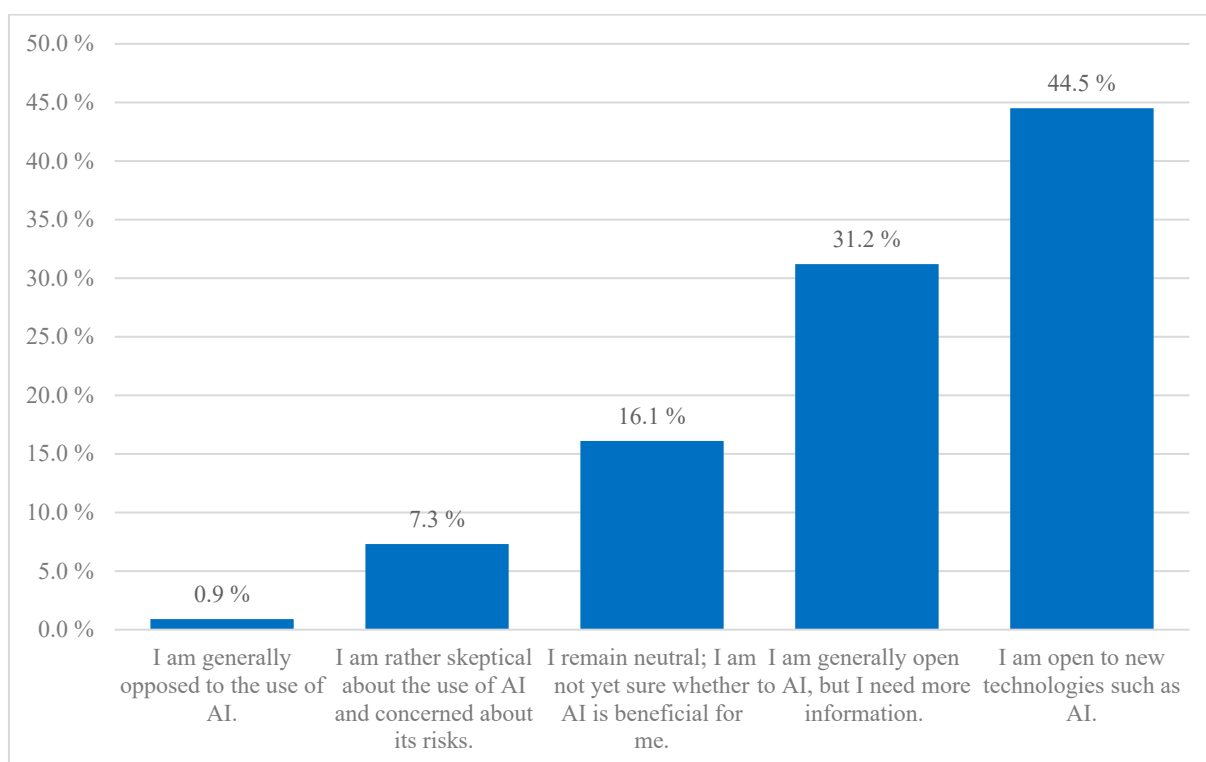


Figure 4. Teachers' attitudes toward AI, $N = 317$ (2025). Most teachers expressed positive attitudes toward AI, with nearly three-quarters reporting openness or positive views, while only a small minority were skeptical or rejecting.

4.2. Using AI in Teaching

RQ2. How often and for what purposes do teachers use AI tools in preparation and teaching, and how have these uses changed since 2023?

The results from 2025 confirm that the use of AI has become a common phenomenon among Czech primary and secondary school teachers. Only 9.8% of respondents said that they have not used any AI tool yet, while the vast majority (89.3%) already have personal or professional experience with these technologies. Compared to the situation in 2023, when 47% of teachers answered that they do not use AI, this is a fundamental shift in the level of adoption and digital competence. In two years, there was an increase of more than 35 percentage points (53.0% + 36.3 p. p. → 89.3%), which shows that generative AI has become a common part of pedagogical practice. This trend reflects not only the increasing availability of tools (e.g., ChatGPT, Copilot, or Gemini) but also their rapid integration into teachers' daily work.

ChatGPT was by far the most frequently used tool, utilized by 95.2% of respondents with at least minimal AI experience ($N = 274$), see Figure 5. Copilot was also widely used (45.2%), followed by Sciobot (15.1%), Gemini (13.6%), and to a lesser extent, Perplexity, Canva, and Suno. In 2023, only 35% of teachers had tried ChatGPT, indicating that within two years, it has become a dominant element in the educational use of generative AI.

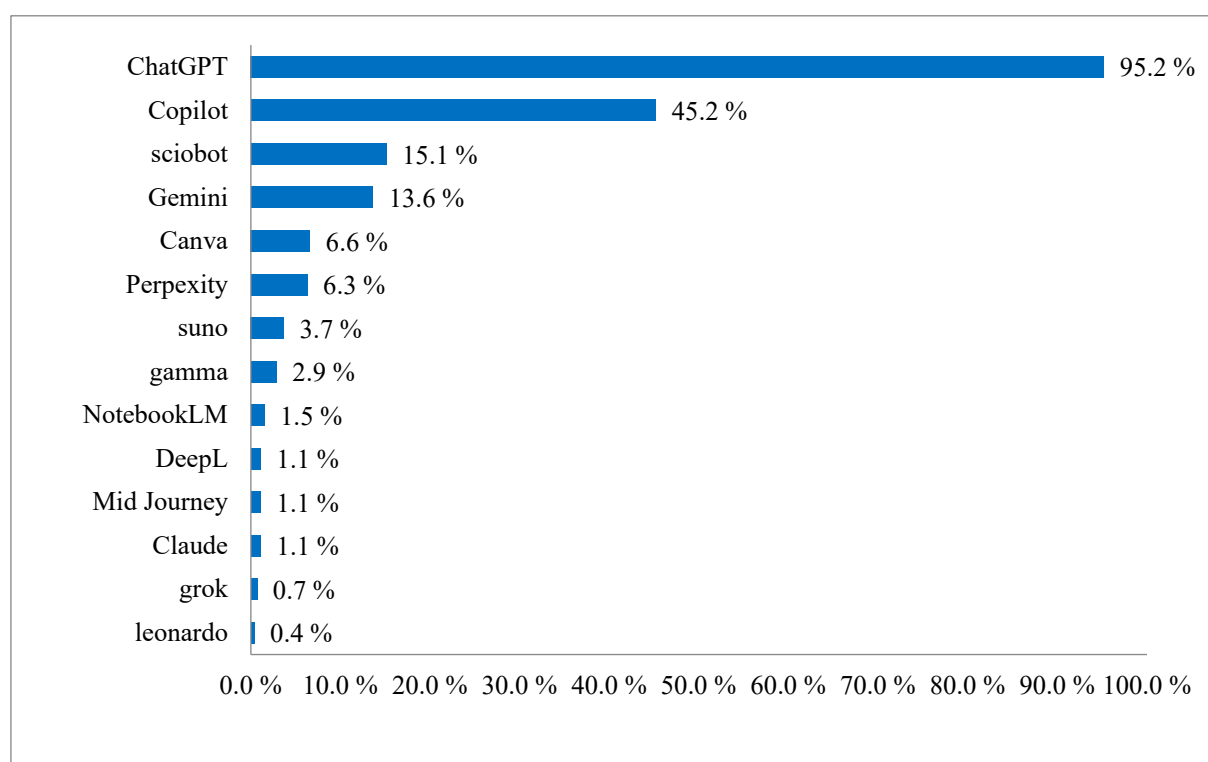


Figure 5. Most frequently used AI tools among teachers, $N = 274$ (2025). ChatGPT dominated usage (95.2%), followed by Copilot (45.2%) and other tools used at lower rates.

A similarly significant shift is evident in the area of continuing education for teachers (see Figure 6). While in 2023, 87% of teachers reported that they had not received any training on AI, in 2025, 69% of teachers had already received at least one course or workshop (of which 27.8% had more than one training session). Teachers in 2025 ($N = 307$) primarily prefer practically focused support: the greatest interest is in demonstrations of the use of AI in teaching (80.8%), free access to paid tools (69.5%), and consultations with colleagues who are already working with AI (44.2%). This indicates a shift from passive interest to active professional development and collegial cooperation in the field of AI.

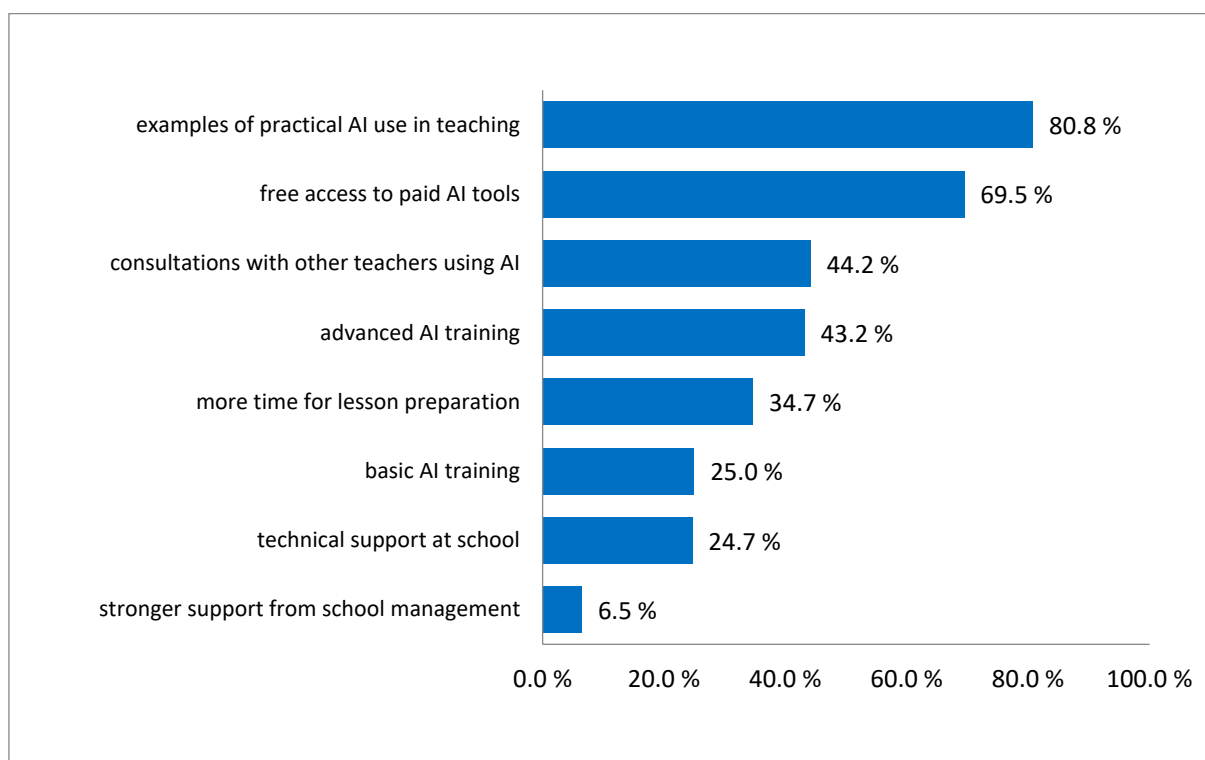


Figure 6. Teachers' participation in AI-related training and professional development, $N = 307$ (2025). By 2025, 69% of teachers had completed at least one AI-related course, compared to only 13% in 2023. Teachers preferred practical support such as demonstrations, tool access, and peer consultation, indicating a shift toward active professional development in AI.

AI has become a permanent part of teachers' preparatory work. 78.9% of respondents said they use AI in preparation for teaching, with 23% of these teachers using it at least once a week and 6.9% even using it daily or almost daily. Compared to 2023, when only 33% of teachers said they actively use AI in school, this is more than a twofold increase.

In total, 59.9% of teachers use AI at least occasionally in teaching, while 40.1% have not yet integrated it. This indicates a gradual expansion of practical forms of integrating AI into the teaching process, especially in the preparation and support activities phase.

The most common uses of AI in 2025 (Figure 7, $N = 259$) include information search (50.6%), creation of worksheets (47.1%), test preparation (40.5%), lesson planning (34.4%), fact checking (34.7%), and generating educational texts (29.0%). Creative applications are also notable, such as creating or editing visual materials (22.8%) and designing creative assignments (22.8%).

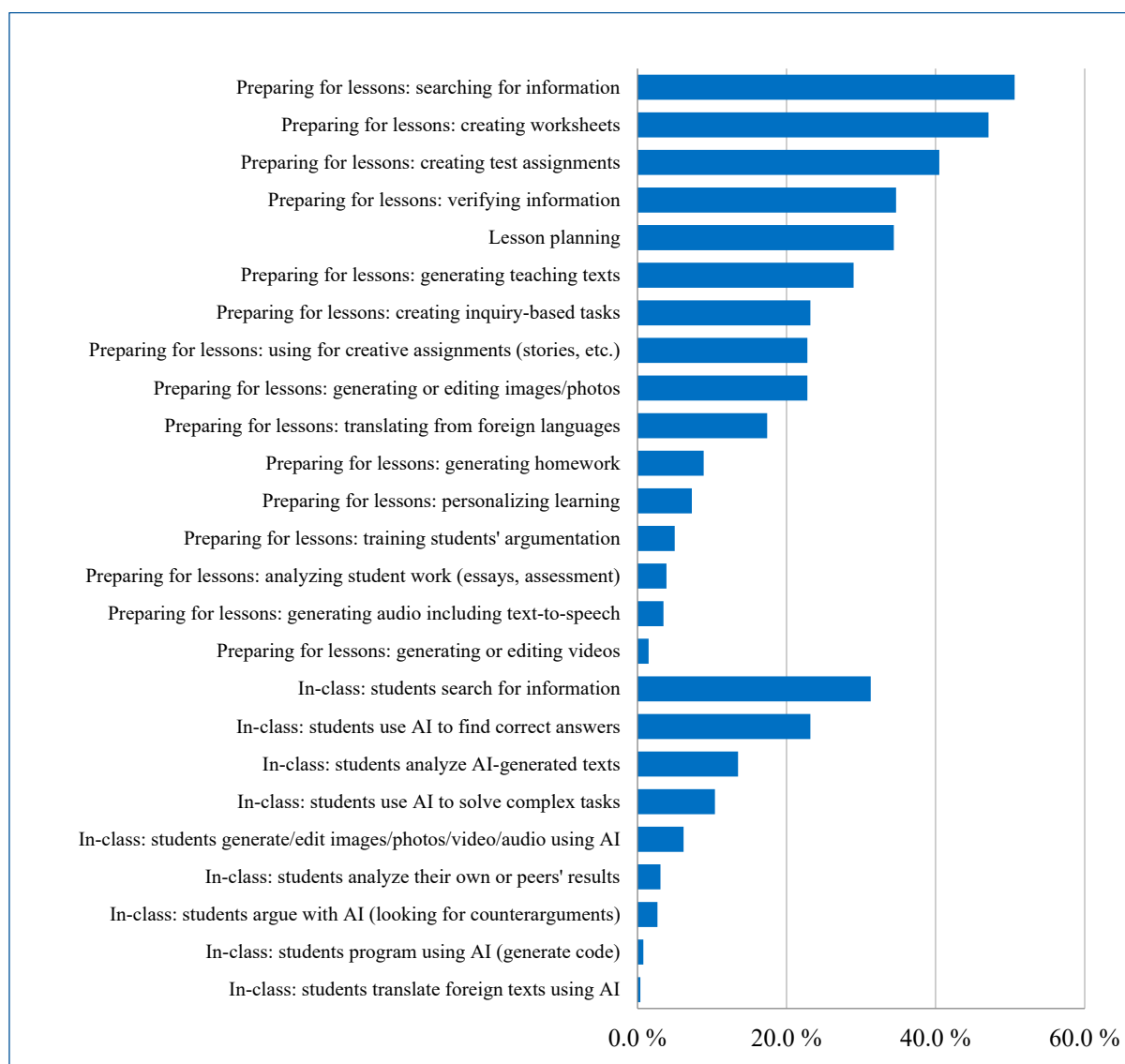


Figure 7. Ways in which teachers use AI, $N = 259$ (2025). Teachers most frequently used AI for information search, worksheet and test creation, lesson planning, and fact checking, with creative uses (e.g., visuals and task design) also represented.

A comparison with 2023 suggests a clear shift in the nature of AI use. At that time, AI was most frequently applied to generate teaching texts (24.7%), translate foreign-language content (19.9%), prepare tests (16.6%), generate images (16.1%), and verify information (13.4%). Teachers also used AI for lesson planning (12.3%) and basic editing of texts or media. These activities indicate a predominantly technical and content-generation role of AI in 2023. In 2025, AI is used in a more targeted and didactically thoughtful way. Teachers are using it not only as a source of inspiration or automation of routine tasks, but also increasingly as a tool for developing student competencies when creating tasks, analyzing texts, or discussing the limits of AI. This shift suggests that AI is starting to be perceived not only as a teacher's assistant but also as a pedagogical tool supporting active learning, creativity, and critical thinking.

4.3. Barriers and Reasons for Not Using AI

RQ3. What barriers and reasons for not using AI do teachers cite, and how have their nature changed compared to 2023?

Despite rapid adoption, certain barriers to the full use of AI persist. The main reason cited is still a lack of information on how to use AI effectively in teaching (*"I don't know how I could use it when preparing for or during teaching."*) (43.1%), followed by distrust in AI (36.1%) and time pressure (31.9%). Fear of students cheating (18.1%) also remains a significant factor.

However, the structure of barriers has changed compared to 2023: while technical concerns and low digital competence previously dominated, in 2025, teachers more often mention a lack of methodological support and specific instructions on how to integrate AI into teaching in line with curricular objectives. This shows that most educators have already accepted the technology but need systemic support and didactic frameworks for its meaningful use.

4.4. Misuse of AI by Students

RQ4. What experiences do teachers have with students misusing AI tools, and how do they reflect this issue in their pedagogical practice?

Almost half of all teachers (44.8%) had encountered situations in which students misused AI for cheating. The most frequent forms involved text generation (36.6%) and searching for correct answers (35.2%), followed by creating presentations (7.7%) and performing calculations (5.6%), see Figure 8 ($N = 142$). Compared with the study by Kopecký et al. (2023), in which 34% of teachers reported similar experiences, the overall incidence of detected "cheating" slightly increased; however, the nature and recognizability of such cases have changed rather than their quantity.

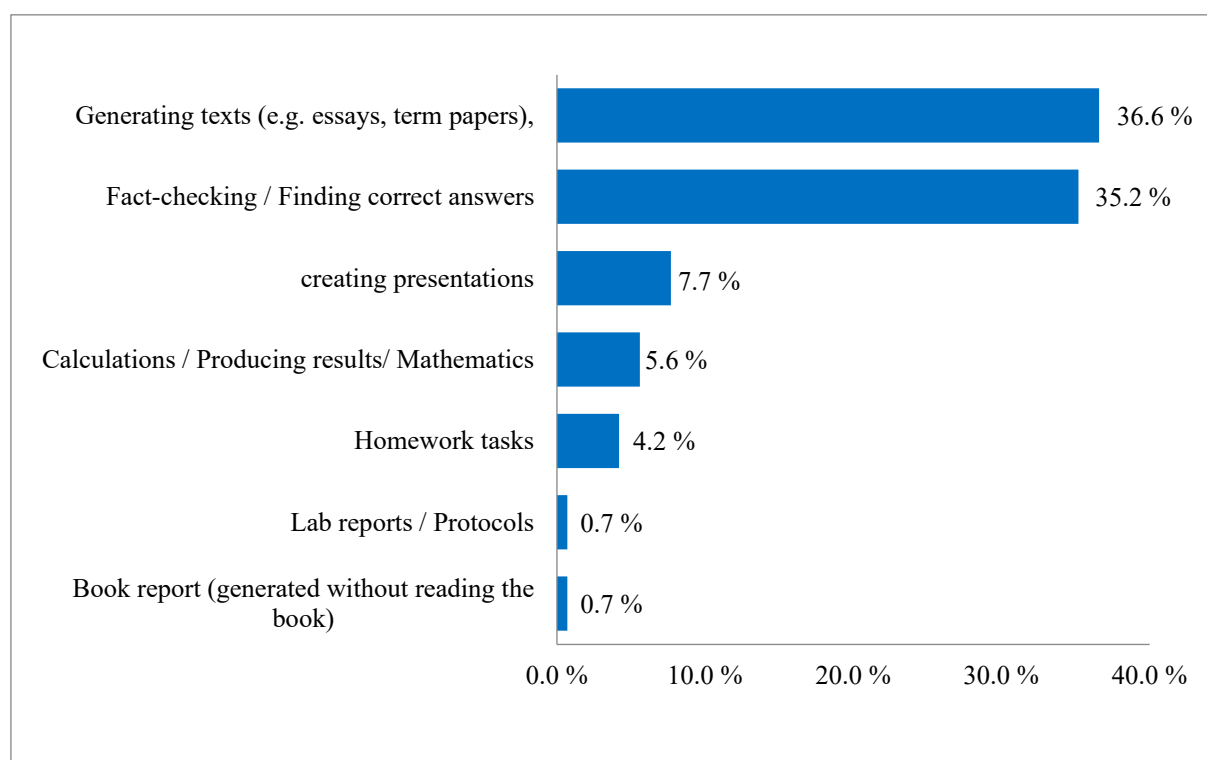


Figure 8. Teachers' experience with students' misuse of AI, $N = 142$ (2025). A total of 44.8% of teachers encountered AI-related cheating ($N = 142$), most commonly text generation (36.60%) and answer searching (35.20%).

While in 2023 it was mainly translations or the generation of homework and essays, in 2025, the abuse is expanding to include presentations, graphic outputs, and combined forms of tasks. At the same time, teachers are showing a higher sensitivity to detecting

these cases, which may reflect a growing awareness of the functioning of AI and a better ability to recognize its outputs.

4.5. Teachers' Attitudes Towards AI

RQ5. How do teachers perceive the impacts of AI on their professional role, the need for new skills, and institutional support for its integration into teaching?

In order to assess the change in Czech teachers' attitudes towards AI between 2023 and 2025, a direct comparison was made with the results of the study by Kopecký et al. (2023), which represented the first extensive mapping of teachers' attitudes towards AI in the Czech education system. For a comprehensive understanding of the changes in attitudes, items that occurred only in the 2025 survey were further analyzed. These statements illustrate the current structure of teachers' concerns and expectations, their perceived readiness, institutional support, and experiences with the specific use of AI in teaching. The results clearly show that teachers have moved from a phase of initial uncertain exploration to a conscious and pragmatic integration of AI into teaching. While in 2023 concerns and limited experience prevailed, the current data show a significant increase in positive attitudes, institutional support, and perceived readiness. At the same time, awareness of ethical and practical risks has deepened, especially the misuse of AI by students, which teachers are now better able to recognize. An overview summarizing the development of selected teacher attitudes between 2023 and 2025 is presented in Table 2. The comparison is based only on items that occurred in both surveys.

Table 2. Teachers' attitudes towards AI-comparison 2023 ($N = 2175$) and 2025 ($N = 317$); 1 = strongly disagree; 5 = strongly agree.

(Statement)	Results (Kopecký et al., 2023)	Results 2025 (This Study)	<i>M</i> (2025)	<i>Mdn</i> (2025)	Interpretation/Trend
S3: AI is positive for the future.	45.5% agree/19.8% disagree	58% agree/6% disagree	3.59	4	A clear shift toward greater optimism; AI is increasingly viewed as a natural and beneficial element of future education.
S4: AI can make the teacher's work easier and more effective.	—	82% agree/7% disagree	4.00	4	AI is broadly perceived as a practical pedagogical aid that enhances efficiency and supports teachers' work.
S5: AI can reduce my administrative workload.	—	59.6% agree/16.1% disagree	3.59	4	AI is seen as helpful for reducing routine administrative tasks, though its full potential in this area is still emerging.
S8: AI can help students better understand the subject matter.	—	52.7% agree/14% disagree	3.46	4	AI is viewed as a supportive tool for improving student understanding and learning outcomes.
S9: AI can help tailor education to each student's individual needs and abilities.	—	59% agree/14% disagree	3.66	4	AI is increasingly recognized as a means of personalizing learning and addressing individual student needs.
S10: AI can support the development of students' critical thinking.	—	45.7% agree/22.7% disagree	3.29	3	Teachers acknowledge AI's potential in fostering critical thinking, but many still view it as supplementary rather than central to this goal.

S1: I am afraid of AI.	35.4% agree/30.1% disagree	19% agree/61% disagree	2.43	2	Fear of AI has decreased substantially; teachers are more familiar with AI and therefore less apprehensive.
S2: The use of AI will lead to people becoming less intelligent.	46.8% agree/27.6% disagree	45% agree/25% disagree	3.24	3	Concerns about cognitive decline persist, although attitudes appear less emotionally driven and more reflective.
S16: I fear that using AI could replace some aspects of my work.	—	29% agree/40% disagree	2.85	3	A realistic concern has emerged about partial automation of teaching tasks, though full replacement is not feared.
S17: I am concerned about the potential risks associated with AI (ethical issues, data protection, misinformation, etc.).	—	62.1% agree/14.6% disagree	3.63	4	Heightened attention to ethical, data-security, and misinformation risks; educators expect clearer institutional guidance.
S19: Students use AI to cheat (e.g., copy answers).	46.7% agree/25.2% disagree	48% agree/20% disagree	3.38	3	Teachers are increasingly noticing abuse of AI; awareness of the risks has increased.
S13: Using AI in teaching requires specific technical skills.	—	48.6% agree/29% disagree	3.23	3	Most teachers acknowledge the need for technical competencies to use AI effectively.
S14: Using AI in teaching requires teachers to gain new didactic knowledge and skills.	82.3% agree/6.5% disagree	61% agree/21% disagree	3.56	4	Didactic preparation remains essential, yet AI integration is increasingly perceived as manageable with appropriate support.
S15: AI will change the teacher's job	83.4% agree/4.9% disagree	74% agree/9% disagree	3.86	4	Teachers still expect substantial changes to their profession, though predictions are now less dramatic and more pragmatic.
S6: School leadership should actively support AI education for teachers		80.4% agree/4.4% disagree	4.11	4	Institutional support for teacher training in AI is widely viewed as essential.
S7: The leadership of our school supports AI education for teachers.	22.5% agree/26.8% disagree	80% agree/6% disagree	4.10	4	Strong increase in perceived support from school leadership, signaling a systemic shift toward AI-inclusive school policy
S12: I feel prepared to implement AI in my teaching.	24.2% agree/51.6% disagree	44% agree/34% disagree	3.07	3	Growing sense of readiness, although a notable portion of teachers still require confidence-building and training.
S11: The integration of AI into education is inevitable.	—	66% agree/10.8% disagree	3.73	4	AI integration is widely regarded as inevitable, though with greater emphasis on responsibility and ethical guardrails.
S18: Students use AI during homework preparation (not necessarily for cheating).	—	71.9% agree/6.6% disagree	3.88	4	Student use of AI for learning has become routine, reflecting widespread adoption beyond the classroom.

Most teachers agreed that AI can facilitate and improve teachers' work ($M = 4.00$) and that school leadership should actively support AI-related training ($M = 4.11$). The lowest agreement was observed for the statement "*I am afraid of AI.*" ($M = 2.43$). Average levels of agreement with 19 statements reflecting teachers' perceptions of AI are presented in Figure 9. Items were grouped into thematic categories (e.g., benefits of AI, concerns and risks, professional development).

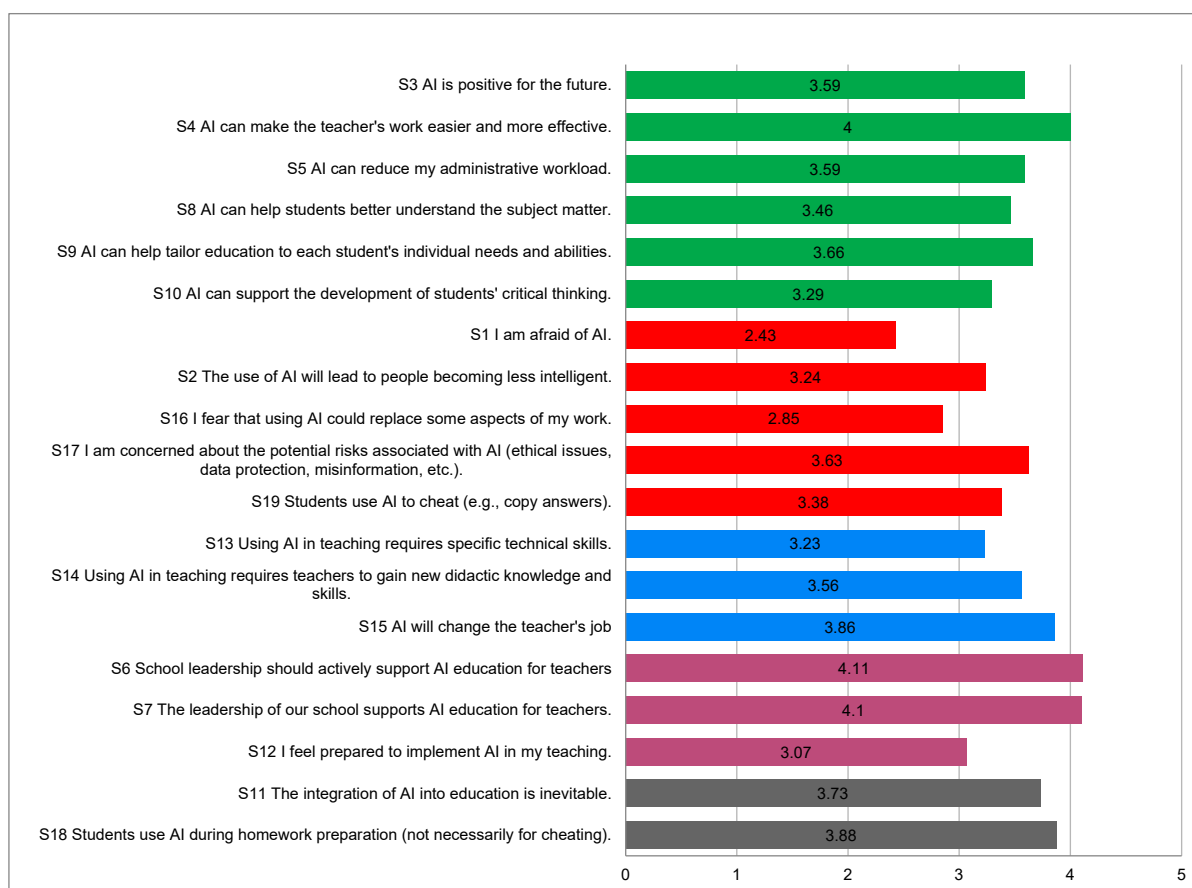


Figure 9. Mean scores of teachers' attitudes toward AI on a 5-point Likert scale, $N = 317$ (2025). Highest agreement related to AI benefits ($M = 4.0$) and leadership support for training ($M = 4.1$); lowest agreement concerned fear of AI ($M = 2.43$).

4.5.1. Positives and Benefits of AI in Education (S3, S4, S5, S8, S9, S10)

Statements focused on the positives and benefits of AI (Cronbach $\alpha = 0.805$) show that teachers in 2025 evaluate AI mainly positively and consider its potential for education to be real and useful ($M = 3.29$ to 4.00). Compared to 2023, there is a noticeable shift from cautious exploration to pragmatic use of AI in teaching. More than half of respondents (58%) agree that AI is positive for the future (S3), while 6% disagree. Compared to 2023 (45.5% agree), this is a clear increase in optimism. The benefits of AI for teachers' work are similarly strongly perceived: 56.5% agreed with the statement that AI can facilitate and improve teachers' work (S4), and another 25.6% completely agreed; only 6.9% disagreed. The statement that AI can reduce the administrative burden of teachers (S5) was also supported by almost 60% of respondents. This is a significant shift compared to 2023, although two years ago, half of educators (48.9%) agreed that AI is a great helper for teachers, and only 13.1% of educators disagreed with this. Teachers perceive the didactic benefits of AI for students similarly positively. Half agree that AI helps students better understand the curriculum (S8), and 59% believe that AI allows for adapting teaching to

individual needs (S9). The statement that AI can support the development of critical thinking in students (S10) is slightly agreed (45.7%), but some teachers remain reserved.

4.5.2. Concerns and Risks in the Work of a Teacher (S1, S2, S16, S17, S19)

This group of statements shows that teachers' concerns about AI have further eased in 2025 and shifted from fear to reflection on specific risks ($M = 2.43$ to 3.63). Teachers no longer perceive AI as a threat, but as a tool whose benefits and risks need to be consciously managed.

Only 19% of respondents expressed that they are afraid of AI (S1), while 61% disagree with this statement. Compared to 2023 (35% agree), this is a clear decrease in concerns.

Similarly, the view that AI will lead to "stupidity" of people (S2) remains stable—45% of teachers agree with the statement, 25% disagree with it, and 31% take a neutral position. The increase in neutrality indicates factual consideration rather than emotional resistance.

Specific ethical and legal risks now play a significant role. Overall, 62% of teachers (S17) expressed concerns about them, while only 15% disagreed. Teachers, therefore, do not reject AI but expect clearer rules and methodological guidance.

The proportion of those who fear that part of their work will be replaced has also increased (S16: 29% agree), although 40% reject this view. Compared to 2023 (6.9% agree), this is a shift towards more realistic concerns about automation rather than the loss of the profession.

Awareness of the risks associated with student behavior is also growing, with 48% of respondents agreeing (compared to 34% in 2023) that students are using AI to cheat. Teachers, therefore, perceive not only the benefits but also the possible misuse of AI tools and the need for prevention.

4.5.3. Needs and Professional Changes (S13, S14, S15)

This group of statements reflects that teachers are aware of the need for new competencies and the gradual transformation of their profession ($M = 3.23$ to 3.86). The results confirm that teachers accept the transformation of their role as a natural part of professional development and attach greater importance to lifelong learning and adaptation to new technologies.

The statement that the use of AI requires specific technical skills (S13) was supported by 48.6% of respondents, 29% disagreed, and 22% remained neutral.

There is even greater agreement with the statement that AI requires new didactic knowledge and skills (S14)—61% of teachers agreed, 21% disagreed. Compared to 2023 (82% agree), it appears that AI is now perceived as a common and manageable part of professional growth, not as a major obstacle.

The statement that AI will transform the work of teachers (S15) was supported by 74% of respondents (in 2023: 83%). The slight decrease can be understood as a shift from expectations of revolutionary changes to a realistic view of the gradual integration of AI into pedagogical practice.

4.5.4. Institutional Support and Preparedness (S6, S7, S12)

The most significant improvement occurred between 2023 and 2025 in the area of institutional (declared and perceived real) support and teachers' perceived readiness to integrate AI into teaching. The group of statements confirms the growth of systemic support ($M = 4.10$ to 4.11) and teachers' self-confidence ($M = 3.07$) in using AI, even though the adaptation process is not yet fully completed.

The statement that school management should actively support teacher education in the field of AI (S6) was supported by a total of 80% of respondents (42.9% agree, 37.5% completely agree).

A similarly high level of agreement also applies to actual school support—80% of teachers agree with the statement that the management of our school supports teacher education in the field of AI (S7), while in 2023 this was only 22.5%. This increase confirms that AI has become a legitimate topic for school policy and professional development.

Perceived readiness has also improved—44% of teachers agree with the statement “*I feel prepared to implement AI in my teaching.*” (S12) compared to 24% in 2023. However, a third of respondents (34%) remain uncertain and indicate a need for further training or methodological support.

4.5.5. The Inevitability of AI Involvement (S11) and Use of AI in Home Preparation by Students (S18)

The statement that AI is inevitable in education (S11, $M = 3.73$) expresses the overall level of acceptance of the technology. In total, 66% of respondents agree with it (44.5% agree, 21.5% completely agree), and only 10.8% disagree. Compared to 83% agree in 2023, the decrease can be understood as a shift from unreserved enthusiasm to cautious acceptance, in which teachers emphasize the need for ethical guidelines and pedagogical guidance. However, statement S18 that AI has become a common part of educational practice and its use by students is perceived as natural is subsequently confirmed by the statement S18 that students use AI in their homework (without necessarily cheating), with which 72% of teachers agree ($M = 3.88$).

Both statements thus summarize the overall trend: AI is accepted by teachers as an inseparable part of the education system, but at the same time as an area that requires responsible implementation, clear rules, and ongoing support.

The analysis of attitudes in 2023–2025 shows a clear shift from caution and concern to practical use and institutional integration of AI in teaching. Teachers today perceive AI as a useful tool (S4: 82% agree) with noticeable benefits for students (S8: 53%, S9: 59%), but at the same time realistically reflect on ethical risks (S17: 62%) and more frequent misuse by students (S19: 48%). The biggest change occurred in institutional support (S7: from 22.5% to 80%) and perceived readiness (S12: from 24% to 44%). Overall, Czech teachers have moved towards a conscious and pragmatic integration of AI into their work over the course of two years.

4.5.6. Differences Between Groups

Analysis of differences in teachers' attitudes towards artificial intelligence (AI) using the Mann–Whitney U test and the Kruskal–Wallis test did not show statistically significant differences between groups by gender, school type, or training on AI, with the exception of the statements below. A significant difference was found only between teachers who had received training in AI and those who had not. Teachers who had received at least one training session were less likely to be afraid of AI (I am afraid of AI) than their colleagues without training. The difference was statistically significant ($U = 8644$, $Z = -2.08$, $p = 0.037$), but the effect size was small (Cohen's $d = 0.23$, $\eta^2 = 0.013$). The median in both groups was 2, with the mean being higher for teachers without training ($M = 2.62$, $SD = 1.10$) than for those who had received training ($M = 2.34$, $SD = 1.02$). The Kruskal–Wallis test revealed one statistically significant difference between teachers working in different types of schools, namely for the statement “*The leadership of our school supports AI education for teachers.*” ($H = 7.95$, $p = 0.047$). The highest level of agreement was recorded for teachers from upper secondary school ($M = 4.45$, $SD = 0.65$), while the lowest was recorded for teachers from upper primary school ($M = 4.01$, $SD = 0.96$).

Most of the effects found were small to negligible, suggesting that the factors of gender, school type, and training played only a limited role in shaping attitudes towards AI.

5. Discussion

Overall, the use of AI in education has undergone a fundamental transformation in two years—from an experimental phase to professionalized and reflected use, which is integrated into the everyday life of schools. Teachers take a realistic, slightly cautious, but largely open approach to AI, especially when it comes to its integration into teaching, reducing administrative burdens, and benefiting students.

The findings of this study provide clear evidence of the rapid normalization of artificial intelligence (AI) in the professional lives of Czech teachers between 2023 and 2025. The comparison shows a pronounced shift from an exploratory to a professionalized phase of adoption, confirming the international trend reported in recent research (Vejlender et al., 2024; Viberg et al., 2025; Yue et al., 2024).

5.1. Changing Attitudes and Readiness (RQ1)

Teachers' self-confidence, awareness, and openness to AI have increased considerably. Whereas in 2023, more than half of Czech teachers expressed doubts or fear, in 2025, the majority perceive AI as a practical pedagogical aid that enhances efficiency and creativity. This mirrors findings from (Viberg et al., 2025; Wang et al., 2023), who also highlight that teachers' perceived readiness and trust strongly predict their willingness to implement AI. The results thus confirm the gradual professionalization of Czech teachers' digital competencies and their movement toward the "constructive partnership" stage described by (Kim, 2024a).

The rise in participation in AI-related training from 13% in 2023 to 69% in 2025 demonstrates the importance of targeted professional development. Similar evidence is found in international contexts where structured, practice-oriented courses significantly improve teachers' confidence and attitudes (Xiao et al., 2025).

5.2. Frequency and Purposes of AI Use (RQ2)

The data indicate a transition from sporadic experimentation to systematic integration of AI into lesson preparation and teaching. Most teachers now use AI regularly, particularly for creating tests, worksheets, or visual materials, confirming the results of studies such as (Efe & Aslan Efe, 2025; Tripathi et al., 2025), which describe similar trends in science and K-12 education. Czech teachers thus follow the global pattern in which AI supports both administrative efficiency and pedagogical design (Celik et al., 2022).

Notably, AI is increasingly perceived as a cognitive partner rather than merely a technical tool, an observation consistent with the typology of "teacher AI collaboration" proposed by (Kim, 2024a). Teachers report using AI not only to generate materials but also to promote critical thinking and reflection among students, confirming the shift toward deeper pedagogical use highlighted by (Ding et al., 2024).

5.3. Barriers and Reasons for Non-Use (RQ3)

Despite clear progress, barriers remain. Teachers most often cite insufficient methodological support, time constraints, and uncertainty about didactic integration—issues widely reported across educational systems (Kazmaci et al., 2025; Yue et al., 2024). These barriers differ from those of 2023, when low digital literacy and technical access were dominant. The shift suggests that AI adoption is no longer limited by technology itself but by pedagogy and institutional culture.

Concerns about ethical and legal aspects also persist. Approximately two-thirds of teachers express worry about misinformation and privacy, echoing the ethical dilemmas identified by (Nguyen et al., 2023; Tagare et al., 2025). This points to the urgent need for

national guidelines and school-level frameworks that define safe, transparent, and educationally meaningful uses of AI.

5.4. Student Misuse of AI (RQ4)

Nearly half of the teachers reported cases of AI misuse by students, most often in text generation or test solving. This is slightly higher than in 2023, reflecting not only more widespread AI access but also greater teacher awareness of how to recognize AI-generated work. Similar patterns have been observed internationally, where the misuse of generative tools challenges traditional assessment methods (Kasneci et al., 2023). However, many educators increasingly use such incidents as opportunities to discuss ethics, digital citizenship, and the reliability of AI outputs (Abd-alrazaq et al., 2023; Kim, 2024a). This pedagogical reframing from punishment toward reflection represents a positive cultural shift.

5.5. Transformation of the Teacher's Role (RQ5)

The results demonstrate that teachers perceive AI as both a facilitator and a potential disruptor of their professional identity. While most agree that AI can reduce administrative burdens and enhance instruction, around one-third fear partial replacement of their tasks. This ambivalence reflects global findings that AI simultaneously empowers and challenges teachers (Ghamrawi et al., 2024; Shi et al., 2024).

The Czech data also confirm the move toward a “dual-agent model” of teaching, in which human and artificial intelligence interact collaboratively rather than competitively (Delcker et al., 2025). Teachers’ calls for continuous methodological and ethical support resonate with international recommendations for teacher-centered professional development (Tripathi et al., 2025).

The comparison between 2023 and 2025 reflects more than a quantitative increase in AI usage; it illustrates a qualitative shift in the professional positioning of AI within teachers’ everyday practice. Unlike previous educational technologies that required specific hardware adoption or institutional investment, generative AI tools have become rapidly accessible and embedded within existing digital infrastructures. Their integration does not depend on structural replacement of devices but on cognitive and pedagogical adaptation.

This characteristic makes AI particularly pervasive. It affects not only lesson preparation but also assessment practices, academic integrity, professional identity, and student autonomy. The data suggest a progressive transformation of teachers’ competencies—from initial uncertainty and reactive concern toward pragmatic integration and reflective management of risks. In this sense, AI adoption can be understood not as a technological upgrade but as a gradual reconfiguration of professional practice.

5.6. Implications and Future Directions

The 2025 results reveal a dynamic but still fragile process of normalization. Czech schools have entered a stage where AI use is common but not yet systematically supported by curricular and institutional structures. To sustain progress, three priorities emerge:

Comprehensive methodological support: teachers need subject-specific examples of AI-enhanced teaching aligned with curricular goals.

Ethical and regulatory frameworks: clear standards on transparency, bias, and data protection should be embedded in national policies (Nguyen et al., 2023).

Continuous professional learning—structured, hybrid, and peer-supported training should ensure equitable access to AI competence development (Xiao et al., 2025).

The Czech experience illustrates that AI adoption is not merely a technological innovation but a pedagogical transformation requiring a strong professional and ethical foundation. The evidence from this study supports international calls for a balanced approach—embracing the opportunities of AI while safeguarding the human essence of teaching and learning.

6. Research Limits

Although the research has provided valuable insights into the changing attitudes of teachers towards AI, several limitations need to be considered that may affect the generalizability of the results.

The first limitation is the incomplete comparability of data from 2023 and 2025. Although the items were maximally aligned with the studies by Kopecký et al. (2023), methodological and terminological differences between the two surveys may have partially affected the interpretation of trends.

Another limitation is the selection bias of the sample. The 2025 research relied on the voluntary participation of respondents who may have shown a higher level of interest in technology and innovation than the general population of teachers. This may lead to a slightly more optimistic picture of their attitudes towards AI. At the same time, regional and subject-specific differences between the participating schools cannot be ruled out, which were not controlled in more detail during this phase of the research.

The self-evaluation nature of the questionnaire, which is based on declared attitudes, not observed behavior, can also be considered a limitation. The results, therefore, reflect teachers' perceptions and experiences, not necessarily the actual extent of AI integration in teaching.

Although the study focuses on the Czech educational context, several findings correspond with international research trends documenting the normalization of generative AI in schools (Velandar et al., 2024; Viberg et al., 2025). The Czech Republic represents a digitally developed European country with comparable ICT infrastructure and teacher professional development structures to many EU education systems. Therefore, while the results cannot be generalized globally in a strict statistical sense, they offer analytically transferable insights into the broader process of AI normalization in education. Future cross-national comparative studies could further validate these trends.

Finally, it is important to note that the rapidly evolving technological and social context may dynamically influence teachers' attitudes. The 2025 data capture the situation when generative AI has become widely available, but the long-term impacts on educational practice may continue to evolve.

7. Conclusions

The study shows that in 2025, AI has become a common part of the professional reality of Czech teachers. From an initially marginal and rather experimental practice (2023), it has shifted within two years to targeted and didactically well-thought-out use: most teachers routinely use AI in preparation for teaching, and a significant part also incorporates it directly into lessons. Work with generative AI tools (primarily ChatGPT), which teachers use to search for and verify information, create materials, and plan lessons, is particularly dominant. At the same time, the level of formal and informal teacher education has increased significantly, and institutional support from school management has strengthened, which contributes to the gradual professionalization of work with AI.

The shifts in practice are also accompanied by a change in attitudes: fear is decreasing, and a pragmatic, predominantly positive view of the benefits of AI for the effectiveness of teachers' work and the support of student learning is growing. However, teachers

realistically reflect on the risks, especially ethical and legal dilemmas, and the misuse of AI by students. Persistent barriers are shifting from technical limits to more complex didactic issues: methodological support, concrete procedures, and time for meaningful integration of AI are most lacking.

Compared to 2023, we are observing a clear trend: AI is no longer a “novelty”, but an emerging standard of school practice. The answer to the question “Is AI inevitable?” is not an absolute yes, but a commitment to responsible, pedagogically anchored, and ethically reflected implementation. The future direction should be based on systematic teacher education, sharing examples of good practice, and creating clear rules that support the benefits of AI for learning while minimizing the risks for students and the school environment.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/educsci16020335/s1>.

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