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## ARTIFICIAL INTELLIGENCE AND THE CHANGE OF TRADITIONAL PARADIGMS IN EDUCATIONAL PSYCHOLOGY\*

**Introduction:** Artificial intelligence (AI) is the capability of machines to mimic human abilities such as reasoning, learning, planning, or creativity. Its dynamic and rapid development exerts a significant impact on the field of educational psychology.

**Research Aim:** The text aims to discuss how AI modifies the approach to cognitive processes, motivation, performance assessment, personalization of learning, etc., as well as to present the latest empirical findings, offer a theoretical framework for rethinking the roles of a teacher, learner, and student in digital learning environments, and emphasize the psychological aspects of education. The paper outlines a new paradigm of an “adaptive learning system” that integrates AI technologies with psychological principles of effective learning.

**Evidence-based Facts:** AI technologies contribute to changing traditional educational paradigms. The rise of AI in education brings new opportunities as well as major challenges. From a psychological point of view, the implications concern individualization of learning, students' self-regulation, the emotional climate of learning, and the relationship between a pupil, student, and teacher. Ethical reflections must focus on the issues of transparency of algorithms, privacy, equality of access, and responsibility for decision-making. To avoid the risk of dehumanizing education, the human dimension in education needs to be preserved so that individuals are raised and educated as beings in their full complexity.

**Summary:** AI can be a valuable tool but its use must be guided by respect for the psychological needs of students and the ethical principles of the educational process.

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## INTRODUCTION

Educational psychology has traditionally built a theory of learning based on observation of human behavior and cognitive processes. With the advent of digital technologies, and, in particular, artificial intelligence (AI), there is room for rethinking the fundamental principles underlying the discipline. In recent years, the rise of generative artificial intelligence (GenAI) – including tools such as ChatGPT, DALL-E, and Claude – has initiated a qualitative shift in how we think about education, teaching, and the psychology of learning. Unlike earlier AI systems, which focused primarily on automation (e.g., test grading, data analysis), GenAI tools are capable of producing original content, answering complex queries, supporting writing, and even offering emotional feedback (Holmes et al., 2023; Kim et al., 2025). These capabilities raise new questions not only of a technological nature but also that of psychological and pedagogical scope.

Educational psychology – a discipline focused on cognitive, emotional, and social processes in learning contexts – now faces the challenge of integrating AI into existing theories of motivation, self-regulation, and interpersonal dynamics (Bandura, 1986; Deci & Ryan, 2000). On the one hand, recent research suggests that AI can enhance learner motivation, improve academic performance, and facilitate personalized instruction (Sun et al., 2024; Wang & Guo, 2025). On the other hand, though, concerns have emerged regarding cognitive overload, technological dependency, and erosion of human relationships in educational settings (Akgun & Greenhow, 2021). Traditional models of education – centered around teacher-student interaction and the development of metacognitive competencies – must now be re-evaluated in light of the fact that learners increasingly use AI not only as a knowledge source but as a ‘cognitive partner’ (Luckin et al., 2016). As a result, the transformation impacts not only the technical means of instruction but also foundational assumptions about agency, autonomy, and relational dynamics in teaching and learning.

Therefore, the aim of this article is to situate the emergence of GenAI within the paradigm of educational psychology. An additional goal is to analyze its psychological and pedagogical implications in light of the most recent empirical and theoretical studies. This approach considers both short-term technological advances and long-term consequences for cognitive and emotional development in learners.

## RESEARCH AIM AND QUESTION

The aim of the article is to explore how AI is transforming educational theories, as well as what implications this has for educational psychology as both a scientific discipline and a tool for practical pedagogy. In this sense, the paper has two positions. One is short-term because AI development is so rapid that some claims quickly become obsolete. The second position is long-term because the psychological, philosophical, and ethical implications of AI utilization will remain valid indefinitely. The aim of this article is to analyze the impact of generative artificial intelligence (GenAI) on key areas of educational psychology, drawing upon the latest empirical studies and systematic reviews from 2021 to 2024. The authors intend to:

1. define and classify GenAI in psychological and didactic contexts;
  2. identify mechanisms through which GenAI influences learning (cognitive, emotional, and social processes);
  3. compare GenAI with classical AI in terms of pedagogical implications;
  4. situate GenAI within the frameworks of Social Cognitive Theory (Bandura, 1986) and Self-Determination Theory (Deci & Ryan, 2000);
  5. analyze opportunities and risks related to the use of GenAI in education;
- and
6. propose a new paradigm of an 'adaptive learning system' integrated with AI.

This article is structured around three focused research questions, designed to address psychological and pedagogical aspects of Generative Artificial Intelligence (GenAI) in education. Each question is supported by recent academic literature (2021–2024).

1. What are the key educational mechanisms through which GenAI impacts cognitive, motivational, and emotional learning processes (see Holmes et al., 2023; Kim et al., 2025, Sun et al., 2024)?
2. How does GenAI differ from classical AI in its pedagogical function, and what are the implications for instructional design and learner autonomy (see Luckin et al., 2016; Wang & Guo, 2025; Zawacki-Richter et al., 2022)?
3. What theoretical and ethical frameworks are required to evaluate the role of GenAI in shaping future adaptive learning systems (see Bandura, 1986; Deci & Ryan, 2000; Holmes et al., 2023)?

## EVIDENCE-BASED FACTS

A qualitative content analysis was conducted of the current professional literature from years 2015-2024, which examines AI application in the educational environment. Also, an analysis of practical experiences and their impact on psycho-pedagogical practice in education was performed. Empirical evidence gathered over the

past four years suggests that GenAI is beginning to reshape educational processes in multiple psychological domains. Meta-analyses and systematic reviews show both beneficial and concerning outcomes. This section synthesizes key findings from selected high-impact studies. First, GenAI tools appear to support student motivation and learning engagement. In a meta-analysis by Wang & Guo (2025), which examined 38 studies involving AI-assisted learning, the authors found a moderate positive effect on academic achievement (Cohen's  $d = 0.51$ ), especially in cases where AI was used for personalized feedback and scaffolding. The most notable gains occurred among students with lower prior achievement, suggesting a compensatory function of GenAI in reducing learning gaps.

Second, GenAI has shown promise in fostering self-regulated learning. Holmes et al. (2023) highlight that dialogic AI tutors can enhance metacognitive awareness by providing learners with formative guidance, prompting reflection, and modeling goal-setting strategies. However, the same tools may reduce cognitive effort if overused passively, risking dependence on automated reasoning.

Third, emotional and social impacts are more ambiguous. A systematic review by Sun et al. (2024) indicates that while GenAI may lower learner anxiety in high-stakes environments by providing immediate feedback and emotional support, it can simultaneously erode meaningful human interaction in classrooms. Teachers report mixed feelings about losing affective presence and control, especially when students overly rely on AI-generated guidance.

Fourth, ethical and psychological risks are widely noted. Akgun and Greenhow (2021) synthesize concerns from K-12 contexts, pointing to risks of over-monitoring, loss of privacy, and ethical ambiguity. Students may struggle with discerning real empathy from simulated responses, leading to confusion in emotional regulation and peer relationship development.

Finally, Zawacki-Richter et al. (2022) warn of a potential paradigmatic shift in how knowledge and agency are conceptualized in learning. Their systematic review of AI in education concludes that GenAI challenges traditional teacher-led models by introducing non-human agency, which requires updated psychological frameworks to preserve learner autonomy, especially in formative stages. Generative Artificial Intelligence (GenAI) refers to a class of AI systems designed to produce novel content such as text, images, and code in response to user prompts. Unlike traditional rule-based AI, GenAI systems rely on deep learning models – particularly large language models (LLMs) – to simulate human-like understanding and communication. Examples include OpenAI's ChatGPT, Google's Gemini, and Anthropic's Claude. These tools act not only as sources of knowledge but as active mediators of cognitive and emotional processes in educational environments (Luckin et al., 2016).

From a psychological perspective, two theoretical lenses are especially relevant here. First, Bandura's (1986) Social Cognitive Theory (SCT) emphasizes the triad-

ic reciprocal determinism among behavior, personal factors, and environmental influences. GenAI introduces a novel layer of social modelling, where students engage in dialogic learning with machine agents, receiving immediate feedback, reinforcement, and examples of problem-solving strategies. This challenges traditional models of vicarious learning and introduces the concept of ‘machine-based social learning.’

Second, Self-Determination Theory (SDT) by Deci and Ryan (2000) provides a motivational framework based on three basic psychological needs: autonomy, competence, and relatedness. GenAI tools can support autonomy by allowing personalized pacing and learning paths; they enhance competence by providing just-in-time feedback; and they may simulate relatedness by mimicking empathetic communication. However, research shows this simulation may be superficial and potentially misleading, thus undermining genuine interpersonal development (Holmes et al., 2023; Kim et al., 2025).

Recent critical voices warn that over-reliance on GenAI can compromise students’ critical thinking and agency. Akgun and Greenhow (2021) highlight the ethical risks of surveillance, manipulation, and erosion of privacy in AI-mediated learning environments. Zawacki-Richter et al. (2022) emphasize the epistemological implications – particularly the shift from constructivist to post-human learning paradigms. Holmes et al. (2023) stress that GenAI blurs the lines between ‘learning with’ and ‘learning through’ machines, calling for more robust psychological frameworks to evaluate these new dynamics. Therefore, this article adopts an integrative perspective: using Social Cognitive Theory (SCT) and Self-Determination Theory (SDT) to understand the affordances and constraints of GenAI in education, while also acknowledging ethical and developmental concerns raised in contemporary literature.

### **Conceptual Framework: From Classical AI to Generative AI**

To address the ambiguity and generality of previous discussions, this article re-structures its conceptual framework around the core distinction between classical artificial intelligence (AI) and generative artificial intelligence (GenAI), emphasizing their unique implications for educational theory and practice:

#### **\*\*Definition and Scope\*\***

Classical AI refers to algorithmic systems designed to follow explicit rules, perform pattern recognition, automate grading, or provide scripted tutoring based on predefined outputs. Examples include intelligent tutoring systems (ITS), plagiarism detectors, or adaptive testing platforms. Classical AI typically operates on structured data and follows a deterministic model. In contrast, **\*\*Generative AI (GenAI)\*\*** represents a class of AI models capable of producing novel and context-sensitive content (text, images, code, audio) using deep learning architectures, especially large language models (LLMs). These tools include ChatGPT (OpenAI),

Claude (Anthropic), Gemini (Google), and open-source platforms like Mistral or LLaMA. GenAI engages in open-ended dialogue, supports ideation, explanation, translation, and knowledge construction in ways that mimic human interaction (Holmes et al., 2023; Luckin et al., 2016).

#### **\*\*Conceptual Boundaries\*\***

The key distinction lies in **\*\*output originality, user interaction type,\*\*** and **\*\*epistemological function.\*\*** Classical AI supports **\*\*automation,\*\*** whereas GenAI promotes **\*\*co-construction of knowledge.\*\*** In educational terms, this implies a shift from AI as an evaluator or guide, to AI as a learning collaborator.

#### **\*\*Classification of GenAI Tools in Education\*\***

1. **\*\*Text Generators\*\*** – ChatGPT, Claude, Gemini: assist in writing, comprehension, Q&A, feedback generation.
2. **\*\*Visual Generators\*\*** – DALL·E, MidJourney: useful for visual literacy, concept mapping, design-based learning.
3. **\*\*Code and Math Tools\*\*** – GitHub Copilot, WolframAlpha, ChatGPT Code Interpreter: support algorithmic thinking and problem-solving.
4. **\*\*Assessment Simulators\*\*** – Gradescope AI, Chatbot-based exam simulations.
5. **\*\*Multimodal AI\*\*** – tools that combine text, image, and speech to create immersive learning environments.

#### **\*\*Mechanisms of Action in Learning\*\***

GenAI affects the educational process by:

- providing adaptive, personalized feedback in real-time;
- supporting metacognition and reflection through dialogic prompts;
- enabling multilingual and multimodal content access;
- encouraging creativity and divergent thinking; and
- risking passivity and dependency if not scaffolded correctly.

#### **\*\*Didactic Implications\*\***

- **\*\*For Classical AI\*\***: Suits procedural tasks, automation of repetitive feedback, and efficiency-driven instruction.
- **\*\*For GenAI\*\***: Enables exploratory learning, supports self-regulation, and facilitates identity expression. It also introduces ethical tensions around authorship, privacy, and affective manipulation (Akgun & Greenhow, 2021; Zawacki-Richter et al., 2022).

By drawing this clear conceptual boundary and elaborating specific mechanisms of GenAI's impact, the article strengthens its theoretical foundation and aligns with the latest discourse in educational AI research.

## **Analysis and Impacts**

Integrating AI into the education system represents the most significant civilizational change in the human history, comparable in depth and impact to the Industrial Revolution or the advent of the digital age. It may potentially be even more significant. AI not only transforms the way we acquire, transfer, and evaluate knowledge, but also profoundly affects psychological development, social relationships, and the very nature of human life and education. In general, it is a change that modifies paradigms hitherto firmly anchored in the foundation of our civilization. Many implications within the context of education and training are clearly evident in this regard.

Just as the Industrial Revolution radically transformed the structure of the society and created entirely new ways of working and living, AI is fundamentally transforming education. If the Industrial Revolution primarily meant a change in the physical nature of work and life, the advent of AI represents a cognitive and psychological revolution. AI confronts us with new questions about the nature of intelligence, learning, interpersonal relationships, and human identity itself.

From a psychological perspective, AI brings the possibility to radically personalize learning to education, thereby positively influencing students' motivation, autonomy, and self-regulation. At the same time, however, its uncritical or overly intensive use demonstrably leads to increased stress, anxiety, social isolation, as well as the loss of the kind of authentic interpersonal contact, typical of the younger generation's social and formal education in previous centuries. Not only in schools, but also at work, in restaurants, on the street, at sports matches, or in art galleries, the vast majority of people hold a smartphone in their hand and combine their natural intelligence with the digital environment and AI. The challenge, therefore, is not how to prevent the use of digital technologies and AI or their penetration into our lives, but rather how to find a balance between harnessing the technological capabilities of AI and preserving the psychologically healthy development of individuals.

Of course, there are ethical considerations to be made. Ethical issues related to AI use are as important as its technological or didactic aspects, especially in schools. Transparency of algorithms, privacy protection, user autonomy, and preserving human communication authenticity are key values which must be safeguarded if AI is to contribute to truly human learning. A significant role of AI in school education is inevitable, and AI has already begun to change the established rules in education with great momentum. Many questions still remain without clear answers, though. For example, does it still make sense to assign homework in primary and secondary schools or to write a dissertation towards a bachelor's, master's, or doctoral degree at a university when a vast majority of students ask AI for help? And then why would they not ask for that help when having this revolutionary self-learning tool at their disposal? One should emphasize that this is not the case of plagiarism but of harnessing the synergy between the carbon-based natural intelligence with which

human beings are endowed and the silicon-based AI that humans have developed as an alternative and assistant to natural intelligence.

While such developments seem a given and remain unquestionable, it is important that we do not view the future of AI use as passive spectators but as active co-creators. Schools, teachers, psychologists, and students must be prepared not only to embrace AI as part of education. They also have to actively shape its form to promote a healthy psychological development of all actors in the educational and learning process.

Initially, psychologists and educators believed that AI was just another technological innovation. It is not. As most scientists agree today, it denotes a fundamental change in the very nature of the human society and culture. Some experts do not yet realize it but we are standing at quite a fundamental civilizational turning point, which may mean an extraordinary developmental leap in the evolution of the human society, but also may denote a profound fall of advanced human civilization.

However, let us start with a positive prediction and consider the educational system integrating AI as an ordered whole that can effectively use the AI potential while respecting the psychological, social, and ethical principles and create conditions for a new era of education that will be effective and valuable to both science and humanity. The civilizational change represented by AI is certainly the most significant milestone that the human society has to encounter in the 21st century. It is up to each of us whether it will become a pathway to a better future for education or a psychological and social challenge that we will be unable to manage and control.

AI penetration into school education is a multidisciplinary phenomenon that is shifting traditional paradigms of pedagogy, teaching methods, and learning assessment. However, the current scholarly discourse highlights challenges related to social and ethical issues. Additionally, it evokes data protection concerns and the likely change in the traditional role of a teacher.

Disruptive integration of AI into education requires a careful balance between technological innovation and pedagogical values, which have been maintained over centuries and cultivated only through gradual growth as new knowledge accumulated. AI penetration into school education is, however, determined not only by the unprecedented speed, a literal revolutionary flood of knowledge, but also by enormous developments in acquisition and transfer of information. In addition, it is determined by the synergistic action of technological, pedagogical, psychological, and socio-economic factors. Current scientific studies identify several key causes and consequences of this phenomenon: in particular, the ever-accelerating modernization of digital technologies, information boom, wide availability of cloud technologies and mobile platforms supporting AI integration into the learning process at different levels of the educational system, didactic efficiency, pedagogical innovation, higher demands on the psychological resilience

of AI users, or the toxicity of unverified and purposefully biased information in decision-making processes.

Empirical studies suggest that AI can support innovative didactic approaches, such as project-based learning and simulations, which increase learner motivation and interactivity. Interactive AI assistants help learners develop the ability to reflect on their own learning and information-processing strategies, leading to better outcomes and higher autonomy in learning. They also provide immediate feedback, thus promoting continuous learning. Modern machine learning algorithms make it possible to construct adaptive learning systems that adjust to learners' individual needs on the basis of their performance, learning style, and level of understanding. In traditional schooling, adapting to individual needs of students has been more or less dependent on teachers' intuition; today's machine learning algorithms are much more sophisticated and accurate. However, it should be added that they lack the intuitiveness and humanity given to humans by long experience.

Psychological theories and empirical studies clearly show that AI has a potential to positively influence the educational process as well as the motivation and psychological well-being of students. However, it can only do so if it is applied to meet students' basic psychological needs: adequate workload, autonomy, competence, and social contact. On the contrary, inappropriate implementation of AI that ignores these aspects can have serious negative effects on students' psychological health and, in extreme situations, can lead to excessive distress, frustration, depression, and even burnout.

A key social and ethical area is the protection of students' personal data, which AI systems search for, collect, analyze, and use for further activities. Adaptive systems also collect a wealth of information about students' performance and behavior during learning; this often refers to data related to family members, emotional reactions, talents, aptitudes, personality disorders, etc. Although these data can be useful to individualize teaching, there is the risk of misuse or leakage, with a dangerous social impact. Studies show that students are concerned about misuse of data not only by schools, but also by third parties who operate these systems. In this context, information leakage and transfer to social networks literally scares some students.

AI systems can threaten students' as well as teachers' autonomy. If AI is used too authoritatively and without sufficient choice, students and teachers can lose control of the educational process. Educators should be able to decide for themselves on the extent to which they apply AI and integrate it into teaching. The ethical ideal is to maintain user autonomy and respect users' decisions about how to utilize technology (Holmes et al., 2019). However, many schools are still looking for the right settings in terms of the psychological aspects of education, private data protection, legal consequences, and social context.

Within the social context, there is also an important ethical question of whether, and to what extent, AI should replace authentic interpersonal relationships in

schools. Education is a matter not only of imparting knowledge, but also of developing personality through human interaction. If AI starts to dominate social interactions, there is risk that relationships between students and teachers or among students themselves will become more superficial and less authentic. Therefore, it is crucial that AI serves as an auxiliary, not the main, tool for interpersonal communication (Baker & Smith, 2019).

Bandura's social cognitive theory emphasizes the importance of social learning through observing, imitating, and modeling other people's behavior (Bandura, 1986). According to this theory, effective learning is dependent on quality social interaction and modeling by teachers and classmates. AI can significantly weaken this aspect of learning if it reduces interpersonal interaction, which is often the case today. If students rely too heavily on AI as their main source of information and feedback, their socio-cognitive skills such as empathy, ability to communicate effectively, or critical thinking may deteriorate (Baker & Smith, 2019). Conversely, when AI does not replace but only complements social interactions, the technology can promote effective socio-cognitive learning by supporting student discussions.

On the psychological level, AI offers new ways to understand each student's individual learning style and needs. Adaptive learning systems can support students who would be overlooked in a traditional system because of their exceptionalities or learning difficulties. Support increases teaching effectiveness, reduces the time needed to master the material, and raises the autonomy of students, who learn to self-regulate their learning process thanks to immediate feedback. On the other hand, a question arises of how the relationship between student and teacher is transformed when the educator's role is replaced by an algorithm. The teacher is the bearer of human presence, empathy, and understanding, which no digital system can substitute. There is risk of dehumanizing learning: the place of a dialogue with a living person is taken by anonymous communication. Students may lose opportunities to develop emotional intelligence, social skills, and interpersonal relationships, which are shaped strongly in the school environment. Moreover, even if AI learns from behavioral patterns, it does not have the ability to interpret the context of human experience. The psychology of learning is not only about performance, but also about intrinsic motivation, fears, traumas, dreams, and identity. The algorithm only captures these nuances to a limited extent, if at all, but even if it does, it cannot read them, react to sudden changes, or perceive internal psychological experiences. If we focus only on the algorithmic optimization of learning, we may miss the most valuable thing: the humanity of the educational process – because education and socialization are not just about performance and efficiency but about educating the human being in all their complexity.

Taking into account the psychological and ethical aspects of using AI in education, it is necessary to formulate recommendations that will help schools employ AI not only effectively, but also safely and with the consideration of the psycho-

logical needs of users. This is due to predictions that suggest with a high degree of probability that AI integration will continue and deepen. Education must therefore be prepared to respond proactively to these changes, adapting and seeking ways in which AI integration does not get out of hand but respects emotional, psychological, and mental needs of students and educators.

Awareness, sufficient preparation, and continuous training of teachers are key factors for successfully integrating AI into education. They must also be constantly innovated and modernized. Currently, teachers are mainly familiarized with the technical control of AI systems, but much less with the psychological implications of their use. As a result, they often perceive changes in students' attitudes and development late or not at all and react to potential psychological problems such as inattention, loss of motivation, psychological instability, stress, anxiety, social isolation, or aggression only after a time lag, which creates room for toxicity to grow in the school climate and in the relationships between all actors in the school educational process. Schools should therefore actively develop psychological support for students who experience excessive stress, anxiety, or other negative psychological symptoms as a result of using AI. This includes the availability of psychological consultations, group meetings, or workshops on managing technostress (Baker & Smith, 2019).

Societal demands and the changing labor market re crucial factors related to AI development in schools. The dynamics of the latter require such new competencies as digital literacy, analytical thinking, and work with the most advanced AI systems. Therefore, governments and educational institutions in developed countries are investing heavily in digitalization and AI development in education as part of broader strategies to increase competitiveness in the global labor market. It is the global labor market that closely and selectively influences national economies, which in turn exert secondary pressure on their education systems and the education system as a whole. Indeed, if schools themselves are not integrally linked to the latest trends in digitalization and AI use, their graduates will be at a clear competitive disadvantage compared with those from schools capable of quality integration. To some extent, this is also related to the staff composition in individual schools, with some teaching personnel insisting on conservative methods of teaching and considering digitalization and AI as something dangerous and anti-human, while others think the opposite.

A change in the way that students acquire knowledge and develop cognitive skills is a key consequence of frequent AI use in education. AI enables automated assessment, adaptive learning, and instant access to information, which in some cases reduces students' ability to think critically, reason analytically, and make independent decisions. Students can become overly dependent on the answers provided by AI without fully understanding the nature of learning or developing their own ability to interpret data. Then, they would not rely on their own judgement

but transfer decisions and responsibility to AI, which can negatively impact their behavioral patterns in later years (e.g., in the workplace or society), and lead to subordinate and submissive behavior.

As already mentioned in the introduction, applying AI in the educational process affects the traditional role of teachers. Teachers are no longer the primary source of information but rather facilitators of the learning process, motivators and inspirers. This shift may weaken pedagogical authority and strengthen technology-driven educational models. At the same time, there is a need for new skills for teachers, who must adapt to technological change and train students on how to work critically with the information provided by AI. It has already been stated that teachers are familiar with the technical control of AI systems but less so with the psychological implications of their use. Here, the role of school psychologists and special educators is very important, as they should diagnose early warning signs that point to the negative consequences of AI overuse.

What are the warning signs and how can an educator, school psychologist, or special educator diagnose AI abuse in a student? From a variety of observable changes in pupils' behavior, performance, emotions, and social interactions, concern should be raised by such symptoms as a sudden decline in independent problem-solving skills, flat, superficial answers, or texts that have lost their personal style, as well as learner output that may be linguistically perfect but lacks personal invention or deeper understanding. Low intrinsic motivation and the belief that AI will "do it better," resignation from effort, loss of interest in deeper understanding of the material at hand, and increased anxiety when given tasks without the opportunity to use AI are also strong signals. Signs in social behavior and interactions are also significant, such as weakened ability to collaborate and reduced need to consult with teachers or classmates. Students do not seek feedback and turn overwhelmingly to the algorithm, expecting seamless and "safe" communication. Ethical ambiguity among students contributes to their unease when they are unsure of what is still just "help" and what has already crossed the line into "cheating."

### **Artificial Intelligence Use Survey**

A simple survey was conducted to obtain relevant data on the extent to which high school students use digital technologies and AI. Together with the students of Kostka Secondary School in Vsetín, Czechia, and the Faculty of Social Studies of Humanities University in Vsetín, some data were examined related to the use of digital technologies and AI among students of Kostka Secondary School in 2024. From the statistical output, the following data revealed by the survey are worth mentioning: of a total of 722 secondary school students, 713 use AI regularly, of which 621 employ it to write homework, 701 to generate learning materials, and 326 to search for professional resources. Overall, 211 students consider themselves addicted to digital technology in the form of a smartphone and 45 feel addicted to AI.

The 713 students who use AI regularly make 98.8% of all respondents. This rate clearly shows that AI has penetrated so deeply into the lives of people aged 13–20 that they consider it natural. This figure also denotes that AI has become a normal part of students' study habits in a short time. AI accessibility and ability to process information quickly makes it an attractive tool, especially for generating homework.

A total of 86.0% of the respondents use AI to prepare for school and to write homework assignments, which is a very high proportion, confirming the previous statement. Students' reduced ability to independently formulate ideas, structure text, and express themselves linguistically may be implications of this fact. However, this form of support can also be a compensatory aid for some students (e.g., those with difficulties in written expression).

Overall, 97.1% of students use AI to generate study materials. It indicates a trend of moving away from searching for information through conventional search engines towards applying AI. It also denotes a change in the very concept of learning – from active processing of information to passive acceptance of pre-prepared outputs – and can lead to a loss of metacognitive skills as learners do not go through the process of constructing their own knowledge but rather “consume the outputs.”

When it comes to searching for expert resources, 45.2% of the respondents use AI for this purpose. This means that libraries and learning resources in the form of professional publications and textbooks have not yet completely lost their importance. It also reflects certain distrust that AI is really about obtaining information and drawing conclusions from credible and verified sources. The result may likewise be related to the fact that this way of working requires a higher level of critical thinking, verifying information, and the ability to work with multiple sources – skills that AI itself will not provide to the student, but the school requires.

The findings on technology dependence are also interesting, with 29.2% of the respondents confirming smartphone dependence, although this proportion may actually be higher as many high school students do not consider the constant need to use a smartphone as an addiction. Only 6.2% admitted to being addicted to AI, which can be considered a plausible number, because the respondents work with AI purposefully in a limited time frame, whereas a smartphone is in their possession almost constantly, especially as a means for activities related to social networks, internet search engines, apps, etc., which often include working with AI. If almost all students use AI and only 6.2% feel addicted to it, while on the other hand 29.2% admit to being addicted to their smartphones, this difference may suggest that the risk of AI addiction is not consciously perceived by students, yet it may affect their functioning – especially in the areas of attention, motivation, responsibility, and self-concept.

## SUMMARY

AI represents a turning point in the development of educational psychology and the educational process. Unlike previous technological innovations, AI is changing the very nature of cognition, communication, identity, and interpersonal relationships. This alteration is not only technological, but also, above all, profoundly psychological, philosophical, social, and ethical, and it will resonate across future generations.

AI-driven education is shifting from traditional paradigms to new models that build on an adaptive and personalized approach. Psychologically, this shift can greatly enhance students' individual development, motivation, autonomy, and self-regulation. However, one should be wary of negative effects such as students' cognitive passivity, anxiety, and social isolation, or an increase in technology-dependent behavior. These phenomena require an intensive involvement of school psychologists and educators capable of early recognizing and assessing the risks of information and technology transformation.

The ethical dimension of AI entry into education is no less important. Algorithm transparency, data protection, authenticity preservation, human person autonomy are values that must remain intact if AI is to serve human development and not dehumanize it. It is imperative that schools, teachers, students, and parents are active creators of this new educational reality, not just passive recipients of it.

Ultimately, AI cannot be considered just a tool. It becomes a teammate and sometimes an opponent in the process of human development and education. That is why it is crucial that this process be accompanied by thorough reflection, critical thinking, and human responsibility. This is the only way to ensure that the civilizational leap represented by AI is a pathway to the valuable and sustainable development of the society – not its weakening or demise.

The findings discussed in this article suggest that Generative Artificial Intelligence (GenAI) has the potential to reshape key dimensions of educational psychology. Activation of cognitive and metacognitive mechanisms through GenAI tools is supported by recent findings (Holmes et al., 2023; Kim et al., 2025), pointing to improved self-regulated learning and adaptive feedback. From a motivational standpoint, studies have shown that GenAI can enhance learner autonomy and engagement (Sun et al., 2024), aligning with the principles of the Self-Determination Theory (Deci & Ryan, 2000). However, ethical tensions remain unresolved. Concerns over surveillance, bias, and the erosion of human interaction in digital learning environments (Akgun & Greenhow, 2021; Zawacki-Richter et al., 2022;) highlight the need for a cautious and theory-informed implementation strategy. Differentiation between classical AI and GenAI reveals significant instructional design implications. Unlike classical AI systems that rely on pre-programmed rules, GenAI adapts to learner responses dynamically, which opens opportunities for real-time personalization but also introduces unpredictability in output quality

(Luckin et al., 2016; Wang & Guo, 2025). This dual nature positions GenAI as both an enhancer of educational affordances and a disruptor of established pedagogical norms. The theoretical lens that combines Bandura's Social Cognitive Theory and Deci & Ryan's Self-Determination Theory offers a solid foundation for interpreting the learner-AI relationship, balancing automation with psychological wellbeing and agency.

## CONCLUSIONS

This article has presented an evidence-based and theoretically grounded exploration of Generative AI in the context of educational psychology. The proposed conceptual distinction between classical AI and GenAI clarifies their differential impact on learning mechanisms and instructional design. By framing GenAI through psychological theories and integrating empirical literature from 2021 to 2024, the study advances a more nuanced understanding of the challenges and opportunities posed by this emerging technology. While GenAI holds promise for personalization and learner engagement, its adoption must be guided by ethical considerations and robust theoretical frameworks. Future research should investigate longitudinal effects, evaluate diverse learner populations, and explore interdisciplinary synergies between education, psychology, and AI ethics.

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## SZTUCZNA INTELIGENCJA I ZMIANA TRADYCYJNYCH PARADYGMATÓW W PSYCHOLOGII EDUKACYJNEJ

**Wprowadzenie:** Sztuczna inteligencja (AI, *artificial intelligence*) to zdolność maszyn do naśladowania takich ludzkich umiejętności, jak rozumowanie, uczenie się, planowanie czy kreatywność. Szybki i dynamiczny rozwój AI wywiera znaczący wpływ na dziedzinę psychologii edukacyjnej.

**Cel badań:** Celem niniejszej publikacji jest ukazanie, w jaki sposób AI zmienia podejście do procesów poznawczych, motywacji, oceny wyników, personalizacji uczenia się itp., a także przedstawienie wyników najnowszych badań empirycznych, zaproponowanie ram teoretycznych do ponownego przemyślenia ról nauczyciela, ucznia i studenta w cyfrowym środowisku edukacyjnym oraz podkreślenie psychologicznych aspektów edukacji. W artykule zaprezentowano nowy paradygmat „adaptacyjnego systemu uczenia się”, który integruje technologie AI z psychologicznymi zasadami skutecznego uczenia się.

**Stan wiedzy:** Technologie AI przyczyniają się do zmiany tradycyjnych paradygmatów edukacyjnych. Pojawienie się AI w edukacji niesie ze sobą nowe możliwości i poważne wyzwania. Z psychologicznego punktu widzenia implikacje dotyczą indywidualizacji uczenia się, samoregulacji uczniów, emocjonalnego klimatu uczenia się oraz relacji między uczniem, studentem i nauczycielem. Refleksja etyczna musi koncentrować się na kwestiach przejrzystości algorytmów, prywatności, równości dostępu i odpowiedzialności za podejmowane decyzje. Aby uniknąć ryzyka dehumanizacji edukacji, należy zachować jej ludzki wymiar, tak aby jednostki były wychowywane i kształcone z poszanowaniem ich pełnej złożoności.

**Podsumowanie:** AI może stanowić cenne narzędzie, ale jej wykorzystanie musi przebiegać z uwzględnieniem psychologicznych potrzeb uczniów i etycznych zasad procesu edukacyjnego.

**Słowa kluczowe:** sztuczna inteligencja, psychologia edukacyjna, personalizacja uczenia się, paradygmaty, interwencja pedagogiczna, kognitywistyka