ARTIFICIAL INTELLIGENCE IN THE EDUCATIONAL PROCESS: THE ROLE OF COMMUNICATION AND THE PITFALLS OF ALIENATION

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Introduction[1]

In today's educational landscape, the integration of artificial intelligence (AI) into the teaching and learning process is becoming increasingly relevant and necessary.[2]

[1] This paper was written as a result of work within the research project *Theology and digitalization: anthropological and ethical challenges* (J6-60105) which is co-funded by the Slovenian Research and Innovation Agency (ARIS).

[2] Tugra Karademir Coskun and Ayfer Alper, "Evaluating the Evaluators: A Comparative Study of AI and Teacher Assessments in Higher Education," *Digital Education Review*, no. 45 (2024), 124–39, https://doi.org/10.1344/der.2024.45.124-140; Tevfik Uyar, "ASI as the New God: Technocratic Theocracy," *arXiv:2406.08492* (2024), 1–17, https://doi.org/10.48550/arXiv.2406.08492; Fraser Watts and Yorick Alexander Wilks, "Spiritual Conversation with a Companion Machine," *Zygon: Journal of Religion and Science* 3, no. 59 (2024): 676–91, https://doi.org/10.16995/zygon.11087; Ozan Filiz, Mehmet Haldun Kaya, and Tufan Adiguzel, "Teachers and AI: Understanding the Factors Influencing AI Integration in K-12 Education," *Education and Information Technologies*, (2025), https://doi.org/10.1007/s10639-025-13463-2; Xiao Tan, Gary Cheng and Man Ho Ling, "Artificial Intelligence in Teaching and Teacher Professional Development: A Systematic Review," *Computers and Education: Artificial Intelligence* 8, no. 1 (2025): 100355, https://doi.org/10.1016/j.caeai.2024.100355; Andrea Fernández-Sánchez, Juan José Lorenzo-Castiñeiras and Ana Sánchez-Bello, "Navigating the Future of Pedagogy: The Integration of AI Tools in Developing Educational Assessment Rubrics," *European Journal of Education* 60, no. 1 (2024): 1–13, https://doi.org/10.1111/ejed.12826; Matt Miller, *AI for Educators. Learning Strategies, Teacher Efficiencies, and a Vision for an Artificial Intelligence Future* (San Diego: Dave Burgess Consulting, 2023); José Antonio Bowen and C. Edward Watson,

Teachers and researchers are striving to understand how AI impacts the quality of teaching and learning, particularly its limitations, benefits, and potential pitfalls. At the center of these discussions is the question of what is gained—and what is at risk—when AI is introduced into the educational process. Some authors emphasize the many advantages of AI use, such as explaining complex concepts, enabling interactive experiences,[3] fostering critical thinking,[4] and increasing student motivation and engagement.[5] Yim and Wegerif, in a study involving 60 teachers, examined the adoption of AI literacy among younger students and found that teachers recognize both the potential and the need for support, highlighting the importance of content knowledge and infrastructural backing for teachers.[6]

Others emphasize that AI is far from a neutral tool, as its use can exacerbate existing inequalities, weaken interpersonal relationships, and lead to a loss of the human dimension in education.[7] In an international study of 508 teachers, Viberg et al. found that a higher level of self-efficacy and understanding of AI correlated with greater trust in

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Teaching with AI : A Practical Guide to a New Era of Human Learning (Johns Hopkins University Press, 2024).

3 Fan Ouyang, Mian Wu, Luyi Zheng, Liyin Zhang and Pengcheng Jiao, "Integration of Artificial Intelligence Performance Prediction and Learning Analytics to Improve Student Learning in Online Engineering Course," *International Journal of Educational Technology in Higher Education* 20, no. 4 (2023): 1–23, https://doi.org/10.1186/s41239-022-00372-4; Ting-Ting Wu, Hsin-Yu Lee, Pin-Hui Li, Chia-Nan Huang and Yueh-Min Huang, "Promoting Self-Regulation Progress and Knowledge Construction in Blended Learning via ChatGPT-Based Learning Aid," *Journal of Educational Computing Research* 61, no. 8 (2024): 1539–67, https://doi.org/10.1177/07356331231191125.

4 Yun Dai, Ziyan Lin, Ang Liu, Dan Dai and Wenlan Wang, "Effect of an Analogy-Based Approach of Artificial Intelligence Pedagogy in Upper Primary Schools," *Journal of Educational Computing Research* 61, no. 8 (2023): 1695–1722, https://doi.org/10.1177/07356331231201342.

5 Wu, Lee, Li, Huang and Huang, "Promoting Self-Regulation Progress and Knowledge Construction in Blended Learning via ChatGPT-Based Learning Aid," 1539–67.

6 Iris Yim and Rupert Wegerif, "Teachers' Perceptions, Attitudes, and Acceptance of Artificial Intelligence (AI) Educational Learning Tools: An Exploratory Study on AI Literacy for Young Students," *Future in Educational Research* 2 (2024): 318–45, https://doi.org/10.1002/fer3.65.

7 Gabriel Julien, "How Artificial Intelligence (AI) Impacts Inclusive Education," *Educational Research and Reviews* 19, (2024): 95–103, https://doi.org/10.5897/ERR2024.4404; Seufert, Guggemos and Sailer, "Technology-Related Knowledge, Skills, and Attitudes of Pre- and in-Service Teachers," 106552.

these tools. Concerns remain high, however, indicating a clear need for teacher training and professional development.[8]

Contemporary pedagogical approaches aim for inclusive environments, with increasing attention paid to students with diverse needs. However, challenges such as reduced attention due to technology,[9] inadequate infrastructure, lack of financial resources, and insufficient teacher training hinder the effective implementation of AI.[10] Beyond these technical and organizational barriers, teachers often express resistance to AI, driven by feelings of uncertainty, lack of knowledge, and fear of losing control over the learning process.[11] Hartmut Rosa warns that modern technologies (including AI) can threaten authentic resonance in the educational process. When technology is not used thoughtfully, it can disrupt genuine connections between students, teachers, and educational content.[12]

The aim of this paper is not only to highlight the positive and negative aspects of AI in education. This article poses a central research question: what role does communication play in the educational process,

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8 Olga Viberg, Mutlu Cukurova, Yael Feldman-Maggor, Giora Alexandron, Shizuka Shirai, Susumu Kanemune, Barbara Wasson, et al. "What Explains Teachers' Trust of AI in Education across Six Countries?," *arXiv*:2312.01627, 2023, https://doi.org/10.48550/arXiv.2312.01627.

9 Christina A. Roberto et al., "Patchy Progress on Obesity Prevention: Emerging Examples, Entrenched Barriers, and New Thinking," *The Lancet* 9985, no. 385 (2015): 2400–2409, https://doi.org/10.1016/s0140-6736(14)61744-x .

10 Julien, "How Artificial Intelligence (AI) Impacts Inclusive Education," 95–103. Rosemary Luckin, Mutlu Cukurova, Carmel Kent and Benedict du Boulay, "Empowering Educators to Be AI-Ready," *Computers and Education: Artificial Intelligence* 3 (2022): 100076, https://doi.org/https://doi.org/10.1016/j.caeai.2022.100076.

11 Musa Adekunle Ayanwale, Ismaila Temitayo Sanusi, Owolabi Paul Adelana, Kehinde D Aruleba and Solomon Sunday Oyelere, "Teachers' Readiness and Intention to Teach Artificial Intelligence in Schools," *Computers and Education: Artificial Intelligence*, no. 3 (2022): 100099, https://doi.org/https://doi.org/10.1016/j.caeai.2022.100099; Sabine Seufert, Josef Guggemos and Michael Sailer, "Technology-Related Knowledge, Skills, and Attitudes of Pre- and in-Service Teachers: The Current Situation and Emerging Trends." *Computers in Human Behavior* 115 (2021): 106552, https://doi.org/10.1016/j.chb.2020.106552.

12 Virginia Lérida-Ayala, José Manuel Aguilar-Parra, Rocío Collado-Soler, Marina Alférez-Pastor, Juan Miguel Fernández-Campoy and Antonio Luque-de la Rosa, "Internet and Video Games: Causes of Behavioral Disorders in Children and Teenagers," *Children (Basel)* 10, no. 1 (2022): 1-18, https://doi.org/10.3390/children10010086; Hartmut Rosa, *Resonance: A Sociology of Our Relationship to the World* (Cambridge: Polity, 2019).

and can the appropriate integration of AI lead to better learning outcomes while preserving the human dimension of education?

Through a systematic review of the literature and analysis of existing practices, this paper seeks to contribute to a deeper understanding of both the possibilities and limitations of AI in modern learning environments and to offer recommendations for its meaningful integration into pedagogical practice.

The Core of the Educational Process: Not Information, but Risk and Resonance

The learning process is not merely the transmission of information; it encompasses a holistic form of communication and relationship between the teacher, the learner, and the content within a particular environment. It is an intertwining of emotional and intellectual dimensions.[13] This means that a student requires a tangible relationship, personal connection, emotional warmth, attentive care, and the satisfaction of co-creating.[14] When these basic needs are not met, tensions or even conflicts can arise.[15] French sociologist and anthropologist Philippe Breton argues that when a person is unable to express themselves through words, they resort to force. We live in a time when the meaning of words is diminishing, and communication is reduced merely to the exchange of information.[16]

What matters for a human being is not only intellectual ability, but also emotional intelligence. Daniel Goleman explains that both an emotional mind and a rational mind operate within us—one that thinks,

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13 Iva Nežič Glavica, "Resonanca in edukacija: temeljni poudarki resonančne pedagogike skozi prizmo resonančnih odnosov," *Bogoslovni Vestnik/Theological Quarterly* 82, no. 3(2022): 717–21, https://www.teof.uni-lj.si/uploads/File/BV/BV2022/03/NezicGlavica.pdf.

14 Roman Globokar, *Vzgojni izzivi šole v digitalni dobi* (Ljubljana: Teološka fakulteta, 2021).

15 Ivan Platovnjak and Tone Svetelj, *Listening and Dialoguing with the World: A Philosophical and Theological-Spiritual Vision* (Ljubljana: Založba Univerze v Ljubljani, 2024), https://doi.org/10.34291/9789612973490.

16 Philippe Breton, *Elogio Della Parola. Il Potere Della Parola Contro La Parola Del Potere* (Elèuthera, 2004).

and one that feels.[17] It is well known that today's generations experience more emotional difficulties than previous ones. Even before the pandemic, the rise of the digital age allowed screen media to erode our emotional literacy, sense of community, self-esteem, and creativity.[18]

Risks in the Educational Process

The educational process does not operate according to market-based logic or mechanical reciprocity between input and outcome.[19] Irish public education scholar Professor Gert Biesta argues that education always involves risk. This is not the same as the risk a teacher faces due to a lack of training, nor is it the risk of insufficient scientific evidence in pedagogy, or the risk experienced by a student who fails to learn something. This kind of risk is present because it involves encounters between people rather than interactions between machines.

Biesta observes that despite this, there remains a strong desire to make education robust, safe, predictable, and risk-free. Yet this denies the reality that education always deals with living "material"—that is, with human beings, not inanimate objects.[20]

Biesta identifies three dimensions of education: qualification, socialization, and subjectification.[21] The first relates to achieving educational goals and acquiring skills and knowledge/qualification. Subjectification refers to an interest in the individuals who are being educated. Learners are not objects but people actively engaged in and responsible for the process. Socialization explores how individuals become part of existing social structures through education. Subjectification, by contrast, addresses modes of being that are not shaped solely by social arrangements or traditions.

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17 Daniel Goleman, *Čustvena inteligenca: zakaj je lahko pomembnejša od IQ* (Ljubljana: Mladinska knjiga, 1997), 23.

18 Globokar, *Vzgojni izzivi šole v digitalni dobi*.

19 Iva Nežič Glavica, "'Pedagogika 3.0' ali oris edukacije v digitalni dobi," *Bogoslovni vestnik/ Theological Quarterly* 83, no. 4 (2023): 1049–60, https://doi.org/10.34291/BV2023/04/Nezic; Nežič Glavica, "Resonanca in edukacija," 716.

20 Gert Biesta, *Vzgoja kot čudovito tveganje*, trans. Alenka Ropert (Ljubljana: Krtina, 2022), 15–16.

21 Biesta, *Vzgoja kot čudovito tveganje*, 37.

Biesta draws on the thought of Emmanuel Levinas, who argues that each human being is a singularity, a unique entity. Levinas is interested in those moments in which a person feels irreplaceable—moments in which someone calls upon you, addresses you, or chooses you. These are situations in which one is exposed and, consequently, a moment of subjectivity. Uniqueness is understood as both irreplaceability and responsibility.[22]

Biesta develops this idea within the pedagogical context and suggests that Levinas' thought leaves the teacher empty-handed: each individual is responsible for their own responsibility, and what others do with theirs is entirely up to them. Responsibility cannot be imposed—it must be assumed voluntarily. The role of the teacher, then, is to ensure that they have done everything possible to create the conditions for a moment of subjectivity: situations in which students feel called, chosen, and capable of taking responsibility.[23]

Resonance in the Educational Process

The German sociologist Hartmut Rosa argues that the modern human relationship with the world is increasingly shaped by acceleration—a comprehensive and intensifying pace of life that leads to various forms of social alienation. This acceleration manifests on three levels: technical acceleration refers to the constant development of new technologies; social acceleration is evident in the "liquefaction" of society—nothing remains stable, everything is in constant flux; and individual acceleration describes the increasing experience of time scarcity in everyday life. These three dimensions are interconnected, forming a closed loop of acceleration.[24]

The educational process and its participants are embedded within this context. Statistics show that around 50% of beginning teachers[25] in the U.S. leave the profession within the first five years, citing high

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22 Emmanuel Levinas, *Otherwise than Being, or Beyond Essence* (Hague, 1981), 66.

23 *Ibid.*, 15–16.

24 Rosa, *Resonance*, 19–25.

25 Beginning teachers are defined as those who have up to five years of professional experience in the teaching profession.

stress levels, excessive workloads, and poor working conditions.[26] Many teachers report physical, emotional, and mental exhaustion, often attributing it to chronic stress.[27] Although a certain degree of stress is inevitable in the teaching profession, Rosa emphasizes that this does not imply helplessness. Historically, humans had to submit to the laws of nature, but today they expect the world to submit to them. Since absolute control is impossible, individuals often experience a breakdown—depression shuts down their future prospects.[28] Rosa warns that the idea of total control is an illusion, and that attempts to force what is inherently unavailable often backfire like a boomerang.[29]

One might expect that digital tools and artificial intelligence would lead to qualitative improvements in human communication. In reality, however, we increasingly observe the impoverishment of interpersonal interaction. Words are losing their meaning, and there is a serious risk that language will be reduced to the mere transmission of data and information between devices—lacking the capacity to express the invisible, the felt, or the transcendent.[30] The French sociologist and anthropologist of communication, Philippe Breton, compares the communication world to transport systems, arguing that media "transport" words. Breton warns that our words are too often empty chatter, and that we live in an era where language is disappearing. Forgetting the weight and meaning of words, we increasingly use them in authoritarian and even violent ways. He summarizes this with a paradoxical

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[26] Dianne McKinley, "The Importance of Mentoring New Teachers," *Incompassing Eduction*, July 29, 2024, https://www.incompassinged.com/post/the-importance-of-mentoring-new-teachers; Emma Garcia and Elaine Weiss, "U.S. Schools Struggle to Hire and Retain Teachers. The Second Report in 'The Perfect Storm in the Teacher Labor Market' Series," *Economic Policy Institute*, April 16, 2019, https://www.epi.org/publication/u-s-schools-struggle-to-hire-and-retain-teachers-the-second-report-in-the-perfect-storm-in-the-teacher-labor-market-series/.

[27] Maruška Željeznov Seničar, *Promocija zdravja zaposlenih v vzgoji in izobraževanju* (Polhov Gradec: MIB, 2023).

[28] Branko Klun, "Rezilienca in resonanca: v iskanju nove drže do sveta," *Bogoslovni Vestnik/ Theological Quarterly* 80, no. 2 (2020): 283, https://doi.org/10.34291/BV2020/02/Klun.

[29] Rosa, *Resonance*.

[30] Fabio Pasqualetti, "Linguaggi della comunicazione e media a servizio dell'educazione," in *L'educazione, la rivoluzione possibile. Perché nessuno deve essere lasciato indietro*, ed. Fabio Pasqualetti and Vittorio Sammarco (Roma: LAS, 2020), 102.

phrase that reflects the schizophrenic nature of communication today: »Speak, but remain silent!«[31]

What happens in society is reflected in schools. Teacher burnout and depression are indicators that the logic of acceleration has entered the educational sphere. These trends highlight the urgent need for resonant relationships—relationships that allow genuine connections between teachers, students, and content. Creating a safe emotional environment, fostering empathy, and nurturing intrinsic motivation are tasks that are fundamentally impossible for artificial intelligence. While algorithms may simulate certain signs of emotional closeness, they cannot replace the human warmth and authenticity of real communication.

Human Communication in the Educational Process

Communication is a process that is only fully realized when all the participating subjects have a genuine space for cooperation. In such communication, it is not only the sender who is active, but all other subjects who decide to enter into dialogue are equally effectively involved. Franko Lever, a professor at Salesian University in Rome, argues that a good communicator is not someone who has answers to all questions, but someone who knows how to stimulate important questions, motivate, and provide answers to those seeking them. They understand that they must initiate and accompany the process from the moment it starts until the synthesis is formed at the end of the dialogue. Lever is convinced that it is not only our words, speech, writing, gestures, acting, singing, painting, etc., that communicate, but every action of ours carries communicative value. This value lies in who we are. Communication involves not only content but also the relationship.[32]

Communication holds a key place in the educational process. The methods of assessment and teaching in modern schools give the impression that students compete by accumulating information. In this

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31 Breton, *Elogio Della Parola*, 9.

32 Franco Lever, "Comunicazione. L'utilità di una definizione di riferimento," in *Dai loro frutti li riconoscerete (Mt 7,15-16): Comunicazione Coerenza Azione*, ed. Franco Lever, Fabio Pasqualetti and Antonio Presern (Roma: LAS, 2011), 20–22.

case, communication is the transfer of content from point A to point B (from the teacher, book, AI, or other tools to the student). In such technical information transfer, the teacher's role is entirely diminished or destroyed. The teacher could be replaced by a machine, which would be similar to a TV or radio signal transmitting content from the transmitter to the receiver.

Gert Biesta introduces the concept of deconstructive pragmatism, which aims to highlight a radically weak understanding of communication as the most suitable for education.[33] He refers to John Dewey and his complexity regarding educational communication[34] and Jacques Derrida, who speaks about the openness of communication.[35]

Dewey is convinced that a person's inner experience is based on language, which is a social product. Language has the natural function of connection, and its consequences influence human or physical events by giving them meaning or significance.[36] Dewey believes that communication should be understood as a process of "sharing experience." For him, cooperation is the central educational mechanism. Communication is enabled by cooperation, but it must occur with shared understanding. This is only possible when all the participants in communication are aware of a common goal, and that goal interests all the participants. Individual activities are connected with others. One cannot perform their own activities without considering the activities of others. While training involves practicing and developing oneself individually, it differs from education. Training does not involve sharing insights with others. The essence is not to transfer meaning from one person to another, but for people to be engaged in a joint activity. In education, this means that the process should involve demonstrating practices within teaching rather than demonstrating formal abstractions of those practices. Dewey does not view education as something done to students, but as something teachers and students do together.[37]

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[33] Biesta, *Vzgoja kot čudovito tveganje*, 47–71.
[34] John Dewey, *Experience and Nature* (Chicago: Dover Publications, 1958).
[35] Jacques Derrida, *Writing and Difference* (Cambridge: Routledge & Kegan Paul, 1978).
[36] Dewey, *Experience and Nature*, 171.
[37] Biesta, *Vzgoja kot čudovito tveganje*, 55–57

At this point, it is appropriate to add the transcendental element of communication. Jacques Derrida deals with the concept of the "metaphysics of presence." What is "present" also establishes a relation to what is not. When we try to define "good," we do so in relation to "evil." The very "thing" that enables "good" simultaneously destroys it. Derrida calls this logic *deconstruction*.[38] Biesta concludes this discourse with a proposal that the future of pragmatism can only be deconstructive pragmatism. He explains that this is not a destroyed, deconstructed pragmatism, but a pragmatism that only exists in communication and in the process of deconstruction.[39]

Education operates through communication, but this does not mean that it happens only through spoken or written words. It is not communication understood as the transfer of information from A to B, but communication as a generative process of cooperation: the joint making of things. At the same time, it is a process as process and contains a certain degree of risk. Removing risk means reducing communication to the transmission of information, which would strip communication of its dialogical meaning.[40]

Is it meaningful to include technology in the educational process? Both yes and no. It is meaningful, but only if this process is not disturbed. In the digital age of numbers and algorithms, everything tends toward ensuring oversight or control over the past, present, and future. This control is also attempted to be imposed on the educational process through various ways of presenting information, assessing understanding, and controlling progress. This not only causes tension between students, teachers, and content but also destroys the necessary resonance among them.

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38 *Ibid.*, 63–64.
39 *Ibid.*, 70.
40 *Ibid.*, 70–71.

ICT and AI in the Educational Process

All information and communication technologies (ICT) have historically been incorporated into the pedagogical process in various ways. Today, in the era of flourishing digital technology and artificial intelligence (AI), their integration into education is rapidly accelerating.[41] Experts hold differing views on this technological inclusion.

In modern societies, the media are not neutral transmitters of information but are increasingly becoming a crucial factor in shaping social reality. Fundamentally, media wield power, influence society, and generate tensions, especially due to their dependence on economics and politics.[42] Their power lies not only in reporting events but also in co-constructing meanings, shaping collective identities, and influencing social memory.[43] At the same time, media can act destructively, as they encourage polarization, distrust in institutions, and the breakdown of social bonds.[44] This dialectic between construction and destruction is a key starting point for analyzing the power of contemporary media.

Early discussions on technological neutrality, as formulated by David Sarnoff, asserted that technologies are neither inherently good nor bad, but their value depends on how they are used. However, today—in the age of algorithms, artificial intelligence, and attention economy—technologies are no longer neutral platforms but active devices of power and economy.[45] Technological systems select, filter, and distribute information based on pre-coded interests, meaning that the use of technology itself becomes ideologically and politically conditioned.[46]

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41 Sanja Jedrinović, "Smernice za uporabo orodij (generativne) umetne inteligence v izobraževanju," accessed Januar 28, 2025, https://www.uni-lj.si/studij/center-digitalna-ul/gradiva/ucni-pristopi-metode-in-oblike-dela/smernice-za-uporabo-orodij-generativne-umetne-inteligence-v-izobrazevanju.

42 Manuel Castells, *Comunicazione e Potere* (Milano: Università Bocconi Editore, 2009).

43 Nick Couldry and Andreas Hepp, *The Mediated Construction of Reality* (Cambridge: Polity, 2017).

44 Lilie Chouliaraki, *The Spectatorship of Suffering* (London: SAGE Publications, 2006).

45 Shoshana Zuboff, *Il capitalismo della sorveglianza: il futuro dell'umanità nell'era dei nuovi poteri*, Seconda ed. (Roma: Luiss University Press, 2023).

46 Tony D. Sampson, *Virality: Contagion Theory in the Age of Networks* (Minneapolis: University of Minnesota Press, 2012), http://site.ebrary.com/id/10613531.

In the educational process, digital and social media are not merely tools or learning spaces but cultural products. Due to generational characteristics (devices are "young"), media are responsible for a gap in language, knowledge, and culture that threatens or at least complicates dialogue with adults. Rivoltella and Garavaglia especially emphasize the problem that schools are drifting too far from life, and the media deepen this gap even further.[47]

Among those favorable to integrating technology into education is Richard Mayer. He believes that using different media (visual and auditory) better focuses the presentation of content. When multiple channels present the same content, there is a dual advantage: quantitative and qualitative. Quantitatively, more material can be presented through two channels than one—the content is presented twice. Qualitatively, two different presentations complement each other, even if they appear different externally. For example, an image can reinforce a verbal description. With the advent of computer technology, the ability to create presentations, animations, and videos has greatly expanded. Mayer identifies two perspectives on media integration in education: 1. technology-centered approaches and 2. learner-centered approaches.[48]

Technology-centered approaches do not lead to lasting improvements in education, unlike learner-centered approaches.[49] The latter can assist in automation—meaning that technology is used to replace humans in certain tasks—and in augmentation, which means using computers to enhance human performance on various cognitively complex tasks. However, it does not overlook the learner, which can happen in the first approach.[50]

A teacher who does not establish resonance in relation to the students and content might seek substitutes in ICT and AI. However, such a process dynamic will never guarantee the "event of subjectivity,"

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47 Andrea Garavaglia and Pier Cesare Rivoltella, "Insegnare e Apprendere Con Le Tecnologie," in *L'agire Didattico. Manuale per l'insegnante*, ed. Pier Cesare Rivoltella and Pier Giuseppe Rossi, 2nd ed. (Brescia: ELS La Scuola, 2017), 260.

48 Richard E. Mayer, *Multimedia Learning*, 3rd ed. (Cambridge: Cambridge University Press, 2020), https://doi.org/DOI: 10.1017/9781316941355, 11–13.

49 Nežič Glavica, "'Pedagogika 3.0' ali oris edukacije v digitalni dobi," 1055–56.

50 Mayer, *Multimedia Learning*, 14.

which communicates to students that they are recognized, chosen, and unique.[51]

The following discussion focuses on AI in the educational process. However, it is clear from the above that all these tools are useful for individual learning, where a person deepens and complements their knowledge.

Diversity of AI Technologies in the Educational Process

Artificial Intelligence (AI) in education refers to the use of computer systems capable of performing tasks that typically require human intelligence, such as understanding language, adapting learning content, automating assessment, and supporting decision-making.[52] AI encompasses a wide range of technologies and methods that together enable the automation and enhancement of pedagogical processes.

In the educational context, AI includes various technological solutions such as AI assistants and intelligent tutoring systems. These "tutors" or assistants simulate the role of a teacher and offer personalized learning paths based on the needs of individual learners. They support different instructional models, including: the content model (what is taught), the pedagogical model (how it is taught), the learner-centered model (what the student knows), and the open model (insight into one's own progress). These systems aim to emulate human tutors by adapting the difficulty, sequencing, pace, and feedback during learning.[53]

Personalized Learning with the Help of ChatGPT

Samala and colleagues conducted an in-depth review of the advantages and disadvantages of ChatGPT in teaching and learning. They conclude that ChatGPT offers benefits such as the ability to provide

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51 Emmanuel Levinas, *Otherwise than Being, or Beyond Essence* (Boston: Hague, 1981), 66.

52 Stuart J. Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach. Fourth Edition* (San Diego: Pearson Education Limited, 2022).

53 Wayne Holmes, Maya Bialik and Charles Fadel, *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning* (The Center for Curriculum Redesign, 2019), 31–34.

personalized and adaptive learning, immediate feedback, and improved accessibility.[54]

The personalization of learning content—adapting the pace and mode of instruction to the individual needs of the student—and the provision of real-time feedback can lead to greater engagement, deeper understanding, and higher academic achievement.[55]

Dilekli and Boyraz explored whether ChatGPT encourages students to think critically. They found that in the first essay assignment—where ChatGPT had access to publicly available sources—it performed as well as or better than students. However, in a second assignment, which required the use of two specific sources that were not freely accessible, the students outperformed ChatGPT. They conclude that expectations of ChatGPT should be limited when sources are not openly accessible and the model has to rely on secondary information. They also observed that the participants in their study felt little need to verify the accuracy of information provided by ChatGPT, indicating a high level of trust. This raises concerns that reliance on secondary sources may distort scientific evidence, promote plagiarism, and spread misinformation.[56] Duran's study similarly warns of users' low level of critical thinking when interacting with synthetic data generated by ChatGPT.

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54 Agariadne Samala, Xiaoming Zhai, Kumiko Aoki, Ljubisa Bojic, and Simona Zikic, "An In-Depth Review of ChatGPT's Pros and Cons for Learning and Teaching in Education," *International Journal of Interactive Mobile Technologies (IJIM)* 18, no. 2 (2024): 96–117, https://doi.org/10.3991/ijim.v18i02.46509.

55 Lijia Chen, Pingping Chen and Zhijian Lin, "Artificial Intelligence in Education: A Review," *IEEE Access* 8 (2020): 75264–78, https://doi.org/10.1109/ACCESS.2020.2988510; Meltem Taşkın, "Artificial Intelligence in Personalized Education: Enhancing Learning Outcomes Through Adaptive Technologies and Data-Driven Insights," *Human Computer Interaction* 8, no. 1 (2025): 173, https://doi.org/10.62802/ygye0506; Tulasi T. Sri and Ahamed S. B. Inayath, "Artificial Intelligence Effects on Student Learning Outcomes in Higher Education," in *2024 Ninth International Conference on Science Technology Engineering and Mathematics (ICONSTEM)* (Chennai, India: IEEE, 2024), 1–5, https://doi.org/10.1109/ICONSTEM60960.2024.10568868; Shribala and Jhaneswaran, "Impact of Artificial Intelligence in Education," *Shanlax International Journal of Management* 11 (2024): 8–11, https://doi.org/10.34293/management.v11iS1-Mar.7992; Nita Ambarita and Muh. Fiqri Nurrahmatullah, "Impacts of Artificial Intelligence on Student Learning: A Systematic Literature Review," *Jurnal VARIDIKA* 36, no. 1 (2024): 13–30, https://doi.org/10.23917/varidika.v36i1.4730; Coskun Alper, "Evaluating the Evaluators."

56 Yalcin Dilekli and Serkan Boyraz, "From 'Can AI Think?' To 'Can AI Help Thinking Deeper?': Is Use of Chat GPT in Higher Education a Tool of Transformation or Fraud?"

While ChatGPT has the potential to enhance educational efficiency and personalized learning, it simultaneously risks diminishing students' critical awareness.[57]

Positive Aspects of ChatGPT in Education

There are three fundamental positive features of ChatGPT in the educational process: support in content preparation, increased student engagement, and more efficient student assessment.

Support in content preparation. Teachers can use ChatGPT as an aid in creating various teaching materials, such as lesson plans, quizzes, and presentations. This support can significantly reduce preparation time and improve the organization of resources. It can also be an effective tool for helping students understand complex concepts through interactive dialogue and explanations.[58] ChatGPT also assists students in preparing presentations on various topics. With its help, they can write speeches or simulate interviews, which may enhance their confidence and public speaking skills.[59]

Increased student engagement. The interactive nature of ChatGPT, with engaging dialogues and activities, can stimulate students' interest. Due to this interactivity, learning becomes not only more enjoyable but also promotes active student participation. The use of ChatGPT can increase student engagement through debates or critical thinking exercises.[60] Korean researcher Lee finds that in their Catholic education system, ChatGPT could help alleviate the workload of pastoral

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International Journal of Modern Education Studies 8, no. 1 (2024):4 9–71, https://doi.org/10.51383/ijonmes.2024.316.

57 Volkan Duran, "Analyzing Teacher Candidates' Arguments on AI Integration in Education via Different Chatbots," *Digital Education Review* 45, (2024), 68–83, https://doi.org/10.1344/der.2024.45.68-83.

58 Gewirtz, David, "How to Make ChatGPT Provide Sources and Citations," *Zdnet*, June 28, 2024, https://www.zdnet.com/article/how-to-make-chatgpt-provide-sources-and-citations/.

59 Talkative, "ChatGPT-4o vs GPT-4 vs GPT-3.5: What's the Difference?," accessed June 3, 2024, https://gettalkative.com/info/gpt-models-compared.

60 Adam Fard, "How to Use ChatGPT-4: A Comprehensive Guide," accessed January 9, 2025, https://adamfard.com/blog/how-to-use-chatgpt-4.

workers and teachers, enhance individualized religious education, and assist in incorporating numerous English texts that are not available in Korean.[61]

More effective student assessment. AI significantly contributes to educational processes, as it has the potential to increase efficiency, productivity, and personalized learning experiences. AI technologies can improve assessment mechanisms and feedback delivery, thus enhancing student learning outcomes. AI-based assessment systems offer accurate and consistent feedback, saving teachers time and increasing the effectiveness of the assessment process. Human grading can vary due to personal preferences, experience, and individual judgment, leading to inconsistency in assessments and feedback. Especially in large classrooms, the time and effort required for manual grading can hinder the delivery of timely and consistent feedback to students. The use of AI in analyzing learning materials and grading can increase the accuracy and objectivity of the process, thereby reducing bias and subjectivity.

Coskun and Alper examined the consistency and discrepancies between the grades assigned by teachers and those generated by AI tools across various exam formats: traditional tests, quizzes, project work, videos, and posters. They were interested in the level of agreement between the sets of grades. The Bland-Altman and ICC tests revealed a moderate to high level of agreement. They found the highest consistency in image-based assessments and the greatest discrepancies in video assessments. They conclude that AI can, in many cases, evaluate more successfully and efficiently, but it cannot replace human evaluators for complex tasks.[62]

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[61] Soo Lee, "The Nature of Faith Education Amidst the Generative AI Craze," *ACTS Theological Journal* 61, (2024):237–76, https://doi.org/10.19114/atj.61.7.

[62] Coskun and Alper, "Evaluating the Evaluators," 124–39.

Negative Aspects of ChatGPT in the Educational Process

The implications of AI—and thereby ChatGPT—include issues of accuracy, adherence to research methodology, and dependence on technology.

Issues with accuracy. One of the immediate consequences is the problem of accuracy, as ChatGPT-4 still makes errors or produces so-called "hallucinations." This includes the issue of citing incorrect or fabricated sources.[63]

One major concern is the reliability of the information generated by ChatGPT-4. Instances of incorrect or "hallucinated" data may mislead students and undermine their trust in educational resources.

Adherence to research methodology. There is a legitimate concern that students might misuse AI for plagiarism or cheating, which jeopardizes academic integrity and the value of education.[64] The ease of access to information provided by ChatGPT-4 raises concerns about academic honesty. Students may abuse this technology for plagiarism or may not engage properly with research methodologies. The use of ChatGPT also raises ethical questions, especially regarding student data privacy and transparency in the use of AI tools. It is essential to establish clear guidelines on how data is used and stored.[65]

Risk of dependence on technology. There is also the issue of excessive reliance on AI tools, which may reduce the students' ability to think independently, solve problems logically, and develop critical thinking skills.[66]

Furthermore, there are concerns about bias and the high cost of such tools. AI can also reduce the focus on the emotional, social, and cultural aspects of teaching and learning. Although AI promotes academic performance and student engagement, helps overcome time constraints,

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63 Gewirtz, "How to Make ChatGPT Provide Sources and Citations."

64 Waalaxy, "How Can ChatGPT Find Reliable Sources?," accessed March 7, 2024, https://blog.waalaxy.com/en/chatgpt-reliable-sources/.

65 Fard, "How to Use ChatGPT-4."

66 Talkative, "ChatGPT-4o vs GPT-4 vs GPT-3.5."

and supports shy students in participating more easily, it may simultaneously diminish these human dimensions.[67]

Conclusion

Teaching involves the processes of individualization, differentiation, and personalization. Individualization refers to adapting the pace of instruction to the individual student. Differentiation involves adapting the teaching approach. Personalization means tailoring education according to the student's interests and experiences.[68] Personalization is the adaptation of learning and teaching based on the comparison between current and desired knowledge.[69]

Throughout this discussion, we have found that ICT tools and AI can be effective in the process of personalization. In other words, when a student needs to act independently—without communication with others—to complete a task, practice, research, or learn, these systems can be effective. However, when it comes to differentiation and individualization, we have not identified AI as a suitable tool.

Regarding the first research question—the role communication plays in the educational process—the findings of this study support the conclusion that comprehensive communication and a resonant relationship between teacher, student, and content are essential for the learning process. This process is inherently risky, as it has to allow for open freedom of decision-making and responsibility. The student must be granted the possibility for a "subjectivity event" to occur—an experience where they feel called, addressed, and chosen; where they perceive their own uniqueness as both irreplaceable and a responsibility. Technology cannot achieve this in a human way, nor will it ever be able to.

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67 Julien, "How Artificial Intelligence (AI) Impacts Inclusive Education," 95–103.

68 Hooper and Rieber, "Teaching with Technology," in *Teaching: Theory into Practice 2013*, ed. Allan C. Ornstein (Boston: Allyn and Bacon, 1995), 154–70.

69 Natalija Komljanc, "Formativno spremljanje učenja," in *Didaktika ocenjevanja znanja: vodenje procesa ocenjevanja za spodbujanje razvoja učenja*, *Zbornik 2. mednarodnega posveta v Celju* (Ljubljana: Zavod RS za šolstvo, 2009), 8–17.

In response to the second research question—whether appropriately integrated AI in the educational process can provide better results while preserving the human aspect of education—we arrived at the following insights: in this study, we have outlined both positive and negative effects of AI in education. The integration of ICT and AI in education is only beneficial when human teachers cannot intervene due to limitations of space (not only in schools, but everywhere), time (not only during live classes, but at any time), or the number of students (communication with all learners).

The use of ICT and AI tools is useful when students are not left entirely to themselves, when the goal is to carefully nurture the talents of each learner, and when it is necessary to enable the learning process in situations where a teacher physically cannot be present. However, these tools cannot replace the teacher.

Our discussion also highlights the need for teacher training and the issue of accessibility to AI tools. To implement ChatGPT-4 effectively in classrooms, professional development programs are necessary to equip teachers with the skills required to use these technologies effectively. Teachers must be trained to integrate these tools in a way that enriches the learning experience.

Another key challenge is ensuring equal access to AI tools. Disparities in technological access among students could further exacerbate existing educational inequalities. Ensuring access to these technologies for all students is essential to avoid disparities in educational opportunities.[70]

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[70] Gewirtz, "How to Make ChatGPT Provide Sources and Citations."

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