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ORIGINAL PAPER

Teaching the Digital Natives - Incorporating AI in Classrooms

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Abstract:
The access of artificial intelligence (AI) into education brings with it unmatched opportunities to interact with digital-native students. In this paper, we present the possibility of incorporating AI into the classroom to improve learning outcomes, student motivation, and tailor education. We present the pros and cons of AI incorporation into educational background as well as run-through strategies for teachers. Digital natives, those students who have been brought up with technology around them, need different tutoring that can be sensitive to their own learning cycles. Old pedagogies cannot motivate these students. AI-enabled tools hold out a lot as they tailor teaching to the student needs, systematize routine management, and create interactive learning spaces. Applying Artificial Intelligence (AI) in education can redefine how you present content, engage with students, and measure learning accomplishments. AI can be utilized to personalize tutoring, maximize interactivity, and provide instant response, all of which are beneficial to augment the learning process. Digital natives- so labeled by Marc Prensky in 2001, due to the students brought up amidst digital technologies like mobile phones, computers, and the internet - is the term used to refer to a peer group of students born encircled by such digital tools. Such students are voluntarily at ease with the technology and incline towards more interactive multimedia-based learning spaces. Thus, the digital natives expect and are most suitable for prompt information access and learning activities that are tailored, real-time, and interactive.

Keywords: *Artificial Intelligence, digital technologies, interactive, AI-enabled tools, student needs.*

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Understanding Digital Natives

AI is changing the way we teach and learn, especially with a new generation growing up surrounded by technology namely, the "digital natives"-a term Marc Prensky coined back in 2001-who have been online since they could walk, bouncing between social media, games, and all kinds of digital spaces without missing a click, because of this, teaching methods have to catch up. Teachers can't just preserve the old ways and expect these students to engage. This essay dives into how AI fits into classrooms now, it looks at what AI brings new-both the good and the bad-along with the ethical questions that arise. By exploring real-world examples from around the globe, we get a clearer picture of how AI can actually help learning, as long as we keep people at the center and don't just follow the latest tech. Just because someone knows their way around technology doesn't mean they can think critically or handle academic work in today's tech-driven world. "In the universe of communication, there is practically a vulnerability of reception of the individual who perceives himself to be a unique and original snowflake." (Lăpădat, Lăpădat, 2020b:121). Now that AI is stirring up everything, including education, we really need to discover how to bring it into classrooms in a way that actually helps students. It's not just about meeting the needs of digital natives but also of making sure we're striving for real critical thinking, making things inclusive, and keeping ethics in mind because "it is the human nature itself to pursue the maximal outcome at the minimal amount of effort." (Buşu, 2022:98). Digital natives grew up surrounded by technology, so it's second nature to them because they don't just use technology, they actually prefer it when they are learning. Their brains are wired and comfortable with screens and digital tools change how they process information and how they interact in class with their colleagues. "Students who account to have warm interactions with their peers and teachers also have the inclination to show better academic self-drive and engagement than students who lack this reciprocal affect." (Bărbuceanu, 2022: 185). The rapid rise of AI and computer technology in the 21st century is shaking up schools in such a way that, teachers can't just keep to the old ways of teaching, thus they have to rethink and adapt their methods to keep up. We shall look at what happens when AI steps into the classroom, the manner AI actually changes how teachers teach and how students learn because teachers have to tweak their methods, and schools need to think wisely about the right way to use AI without losing sight of what really matters. In the end, bringing AI into education should push things forward, in a thoughtful manner to make sure every student benefits, not just chase the latest trend.

AI as an Instructive Tool

The applications of AI technologies have the potential to revolutionize instruction by delivering customized, specific learning experiences, automating administrative tasks, and intelligent tutoring systems and boost "social well-being" aimed to increase the resilience status of the communities." (Olimid, Olimid, 2022:91). Tools like adaptive learning platforms (e.g., Squirrel AI, Knewton) can analyze student performance in real time and tailor content to individual learning styles, needs and paces and are able to provide feedback, respond to students' queries, and support differentiated instruction. AI stirrs up the classroom in many ways, starting with things like gamification and interactive simulations, students don't just sit and watch-they actually get involved making learning feeling more like playing a game than going through a textbook, and that keeps people hooked. Additionally, AI studies how each student learns and adjusts the

material for them so everyone gets a learning experience that actually fits them, even "vulnerable groups" (Paraschivu, Cotuna, 2021:573). By automating routine administrative tasks such as grading and scheduling, AI allows teachers to spend more time teaching and engaging with students, such that overall the learning environment is improved. AI achieves its most significant educational success through individualized learning experiences which Squirrel AI in China demonstrates through machine learning evaluation of student strengths and weaknesses to generate customized course materials (Zawacki-Richter et al., 2019). Carnegie Learning, a U.S. education company, builds math curricula that adjust practice and feedback for each student making students more engaged and helping them do better in class (Holstein et al., 2019). AI-powered tutoring systems like ALEKS and Duolingo step in with instant feedback and advice exactly what today's digital natives expect- help right when they need it. Studies even show that these tutoring systems can boost learning just as much as working one-on-one with a tutor (VanLehn, 2011). AI gives teachers a real break from tedious tasks like grading and tracking attendance, Gradescope, for example uses AI to automate grading open-ended responses in STEM classes which means teachers spend less time buried in paperwork and more time actually connecting with students or planning better lessons. Squirrel AI Learning is a Chinese ed-tech company that has developed AI in more than 2,000 learning centers. Their system checks how students answer questions, spots where they're getting things wrong, and tweaks the material to fit each student. Studies show that kids using Squirrel AI actually improve their test scores a lot more than those in regular classrooms (Zhang et al., 2020). It's a clear example of how AI can make personalized education possible for a huge number of students and to "…boost personal, social and professional growth in future career and social interaction within the academic environment or imminent job." (Bărbuceanu, 2019:46).

Rethinking the Role of Educators

With learning instructions being turned over to artificial intelligence systems, the teacher's role is modified, no longer merely the bearers of knowledge, instructors now become facilitators of questions, guides, and mentors in ethics. This shift comes from the idea that students learn best when they interact and reflect, building their own understanding, moreover these days, with AI in the classroom, teachers aren't just there to walk students through the curriculum, they need to help them figure out how to use, question, and make sense of AI-responsibly, too. Surely, professional development is fashionable now, but it's not enough for teachers to just know how to use AI tools, they have to understand where those tools fall short, how bias can slide in, and what it means to use them the proper way. If schools want AI to actually work in the classroom, teachers have to be both tech-savvy and flexible in their teaching , and that is the real challenge- expanding the role and function of modern day teachers. "This result can be accomplished by personal and social awareness and proper emotional feedback in specific circumstances." (Buşu, 2020:205). As AI is stepping in to handle more of the technical teaching, teachers aren't just lecturing anymore, they guide students through learning, help them figure out right from wrong, and show them how to use AI responsibly. In these AI-powered classrooms, teaching blends with hands-on learning and curiosity, encouraging students to work together, solve problems, think for themselves, access information but not so much its validity.

Professional Development

If one wants AI to really work in education, teachers need ongoing training, thus Finland's "Elements of AI" program is a good example. It's a free online course that helps both teachers and regular citizens get what artificial intelligence is all about (European Commission, 2020). Nevertheless, training can't just be about learning, teachers need to actually understand AI-how it works, what it means for their students, and why it matters. The Elements of AI course were not designed just for teachers at first, but Finnish officials made it part of teacher training anyway, now, teachers in Finland can bring AI into their classrooms with a real grasp of the basics and the ethics involved (European Commission, 2020).

Pros of AI in Learning

Artificial Intelligence is changing the way students learn and now, with the right software, every student gets a learning experience that fits them-not *one-size-fits-all* approach. AI platforms actually understand on how each person learns best, they tweak how they present information, switch up the difficulty, and even adjust the speed to match what the student needs. Programs like Smart Sparrow, Squirrel AI, and DreamBox do all of this on the fly as they watch how students handle questions, detect where someone's struggling or excelling, and then shift their approach in real time which is a smarter, more responsive way to teach and learn. "From a social constructivist perspective, the learner builds his knowledge through active interaction with his physical and social environment." (Scorţan, 2021:143). The potential results could be the boost in motivation of the student, reduced frustration, optimization of learning results for most students. "Increase of motivation and enthusiasm of students and teachers through active involvement in the process of live communication, possibilities of language acquisition are increasing thanks to the cooperation, interaction and communication in learning language." (Chiriţescu, Păunescu, 2017:376). Artificial intelligence (AI) can be used to automatically grade assignments, provide written feedback on student responses, and detect plagiarism. Tools such as Turnitin (for AI-based plagiarism detection) and Gradescope (for automated grading of open-response questions) help reduce teachers' workloads while offering students immediate, consistent feedback. AI doesn't just sit in the background-it pushes accessibility forward with tools like Microsoft Immersive Reader or Google's Live Transcribe read texts out loud, translate on the fly, and provide visual or audio support when students need it, furthermore they level the playing field for students with disabilities, for English Language Learners, and for anyone whose learning style doesn't fit the pattern. With this kind of tech, classrooms become more welcoming, flexible, and effective for everyone towards an "active and constructive learning that can be applied later in social, professional and cultural terms." (Lăpădat, Lăpădat, 2020a:142).

Intelligent Tutoring Systems (ITS)

AI instructors act a lot like private tutors coaching students with additional info, feedback, and quizzes, guiding them step by step, for example, MATHia from Carnegie Learning or Duolingo's AI tutor-both step in after school to help students keep learning when class is over. These programs don't just teach, they also keep an eye on how each student is doing. Tools like Canvas and Blackboard track progress and spot early signs when a student's losing interest or at risk of failing thus early warning systems like these let teachers step in before things derail. AI doesn't stop there, it recommends courses,

automatically grades assignments using tools like ScribeSense, and even helps teachers brainstorm or plan lessons with ChatGPT. All this tech frees up teachers, so they can focus more on students and less on paperwork, changing how classrooms work, making it easier for teachers to help every student succeed "(…) may interfere with learning or consolidate it." (Scorţan, 2022:146). AI-powered ed-tech tools have the potential to enhance learning by becoming more engaging through gamification, for example Ed-tech software like Kahoot!, Quizizz, or learning games developed on the pattern of AI are encouraging student involvement and learning retention "activities that are meant to encourage the student's creativity, critical thinking and communication skills." (Stoian, 2019a:131).

Limitations of AI in Education

When schools use AI, they need hardware, software, and a solid internet connection-not every student gets that, especially in poorer or rural areas , subsequently making things less fair and cutting into learning chances for students who are already at disadvantage, additionally relying too hard on AI means students miss out on real conversations, working with others, and building emotional intelligence thus losing those social and communication skills that come from actually connecting with people in the classroom. Additionally, AI systems tend to detect and even amplify the biases in their training data-race, income, gender, thus predictive models start labeling minority students as "at risk" more often, leading to unfair outcomes and discrimination in education. Other AI-based curricula bypass teacher imagination and professional judgment, teachers merely acting as administrators of technology instead of learning facilitators. Large student data (performance, learning habit, whereabouts) are captured by AI programs and thus possibly vulnerable to data exposure, third-party exploitation, or student activity tracking. Students often rely too much on AI, which chips away at their problem-solving skills, independent thinking, and sense of intellectual autonomy and if is done across a whole generation, that's a real concern. Furthermore, running AI in schools isn't simple or cheap, schools need reliable infrastructure, ongoing training, constant updates, platform maintenance, making all of this straining budgets, and if the system goes down, learning also pauses. Policy brings its own questions because nobody really knows who actually owns the data and who is in charge of the AI, moreover the whole debate keeps spinning in circles, with people talking about the need to tackle uncertainty and take responsibility for the ethics of using AI in classrooms.

Challenges and Ethical Problems

AI has the power to entirely change the way we think about education, but it comes with a lot of problems-especially when it comes to data privacy -because these systems collect student info, without students even giving real consent, thus AI systems gather and process vast quantities of student data and pose questions regarding consent, ownership, security. Algorithmic bias is another real problem, when AI relies on biased data, it can reinforce harmful stereotypes or unfairly target certain student groups, wrongly judging someone just because their way of speaking doesn't fit the standard. Teachers need to stay alert to these mistakes and push for more inclusive, transparent algorithm design because when one lets machines take the lead, real human conversation, empathy, and intuition start to fade into the background thus learning isn't just about passing along facts, it's rooted in connection, creativity, and teamwork-things AI can't just yet replace. Education now leans heavily on AI, which means student data gets used all the time and this without strong security, puts student privacy at risk. The EU's GDPR rules pushed

data providers to rethink their policies, but there's still a disconnect between different regions (Williamson & Eynon, 2020). AI often ends up reinforcing old social inequalities, too-voice recognition, for example, struggles with students who have non-native accents (Blodgett et al., 2020). Teachers have to stay alert to these biases and push for more inclusive AI designs, nevertheless relying too much on AI takes the human touch out of learning. Surely, AI can deliver facts, but it can't offer empathy, tact, or moral judgment thus learning stays human at its core with AI supportting, not replacing the teacher. A 2020 Stanford study revealed a troubling gap: facial recognition technology used by some learning platforms struggled with accuracy when identifying students with darker skin tones (Buolamwini & Gebru, 2018). That's not just a tech problem-it's a serious issue of AI fairness and bias furthermore schools need to take a hard look at the tools they adopt and push for technology that treats everyone equitably. Teachers don't just use AI as a tool, they also have to help students become fluent in its language thus students need to understand how AI shapes society, the ethical stakes, and the human impact thus the best approach pulls together the humanities, ethics, and computer science, so students learn to think critically and act responsibly in a digital world. When students dive in-building their own machine learning models or designing AI products with ethics in mind-they shift roles, they're no longer just using technology they are shaping it. These experiences push them to work together, think creatively, and actually solve problems, not just memorize answers. UNESCO said it best in 2021: digital and AI ethics deserve a place in every classroom. The aim isn't just to make students comfortable with technology, but to turn them into informed, engaged citizens. "The present tense conditions the listeners to actively listen and be involved in the activity of learning in the present with a view of improving the future." (Chiriţescu, Păunescu, 2021:102).

Conclusion

AI in the classroom is a disruptive promise because it puts the digital lives of today's students right at the heart of learning, and, for digital natives, AI isn't just another tool-it opens the door to learning that actually fits them: personalized, interactive, and relevant, to make learning more human, using AI carefully and thoughtfully. The integration of AI into instruction is an educational imperative as AI can craft lessons that keep students engaged and meet them where they are, still, these advantages come with a catch because one has to weigh them against real social, ethical, and pedagogical concerns "in order to obtain better student outcomes" (Stoian, 2019b). Bringing AI into education isn't just about the acquisition of new tools, it means rethinking what really matters-putting people, critical thinking, and social responsibility at the top of the list. Everyone-from policymakers to technologists, to teachers- needs to work together so AI actually strengthens what makes learning human, not replacing or eliminating it.

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