SONAANCHAL JOURNAL (Q2)
A Blind Peer-Reviewed Multilingual & Multidisciplinary Research Journal
Volume 1 | Issue 1
Publication Frequency: Bi-Annually
Access: Open and Free
Languages: Indian Languages

Artificial Intelligence (AI) and the Evolving Roles of Teachers: A Qualitative Study on Automation vs. Augmentation in Education

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Abstract

Artificial Intelligence (AI) is being increasingly integrated into education, thus changing how we think about teaching and learning. This qualitative study examines teachers' roles as they evolve, and considers both the perspectives that refer to automation of administrative tasks or instruction and the perspectives that use AI to augment teachers' practice. Based upon a review of literature and selected conceptual frameworks, this paper highlights the possibilities and challenges of integrating AI into the educational landscape and its impact on educators' roles, professional growth, and student-teacher relationships. Ultimately, this study aims to contribute a thoughtful and considered lens on how AI will shape the teaching role and practices in the future. The rapid rise of Artificial Intelligence (AI) is changing the educational landscape and questioning the role of educators in a more automated world. This qualitative case study explores the changing nature of the relationship between AI technologies and educators, based on the tensions of automation (where AI carries out instructional or administrative tasks without

human intervention) and augmentation (where AI supports and extends a teacher professional practice). Using semi-structured interviews with educators, school leaders, and specialists in education technology - the research engages in the experience and concerns of teachers and educators integrating AI into their teaching and learning practice.

Keywords: Artificial Intelligence, Education Technology, Professional development, Educators.

Introduction

The emergence of Artificial Intelligence (AI) is providing new opportunities and challenges for all sectors, including education. Specifically, in the classroom, AI will impact teachers' roles in two primary ways: by automating a variety of tasks previously completed by teachers, and by enriching teachers' instructional practices using advanced technological tools. The separation between AI's automation and augmentation is significant in defining first how AI will alter teachers' daily practices, their relationships with students, and their professional development. Erali Ruziev (2025) "AI and the Future of Teacher Roles: Automation vs Augmentation" The article provides a timely perspective on the role of AI in education, addressing critical questions regarding the future of teachers in an increasingly automated profession. Ruziev presents the conflict between the advantages of AI-facilitated automated behavior, and the value teachers provide that cannot be replaced by AI. Overall, he argues for a flexible position of collaboration in which AI works alongside educators, enhancing, but not replacing, traditional teaching. Petros Lameras & Sylvester (2021) "Power to the Teachers: An Exploratory Review on Artificial Intelligence in Education" This article provides a thorough exploratory review of the impact of artificial intelligence (AI) in education. The authors use the PRISMA framework, and through their examination of a total of 141 articles in the literature, they analyze and synthesize, considering the needs of several AI applications. The main findings include a system of categorizing AI uses and a structure for aiding teachers to develop skills for how to effectively use AI in education. The article also considers ethical implications and recommends a set of propositions for actualising AI-enabled teaching and learning. In a sense, automation can be thought of as the replacement of processes that the teacher leads with systems driven by AI. In this sense, teacher time may decrease spent on direct instruction while technology may increase

their dependence on a tech infrastructure (McKinsey & Company, 2023). In contrast, augmentation can be viewed as AI being used as an gamified tool that supports the maintenance of student learning or facilitates the role of the educator as a mentor/designer/orchestrator of student learning rather than just the deliverer of content (Lameras & Arnab, 2022). The perspective of augmentation positions the educator as part of the learning enterprise while performing learning in an evolved role, where relational, ethical and interpretive skills are even more important than they have previously been.

Evidence suggests to catalyse the possibilities of AI augmentation teachers will need to develop new competences such as data-literacy, ethical discernment and technological fluency and this professional development will need to be supported in systems (Lameras & Arnab, 2022; McKinsey & Company, 2023). However, concerns arise: AI may not be able to perform the essential work of coaching, emotional-contextual support, and adaptive facilitation, even though research indicates AI may do administrative and evaluative work (McKinsey & Company, 2023). This qualitative study seeks to explore how, and to what end, teacher experience is changing in the newfound space of AI-dependent teaching. Conflicts between automation and augmentation surrounding teacher experience and the renegotiation of professional roles in the context of an AI-centric ecological model of education will also be examined. Automation is the substitution of traditional, teacher-directed processes with the action of an AI system, disrupting or replacing teacher-directed practice of the "content" for a process of engaging with the technological "delivery" system (Zawacki-Richter et al., 2019). On the other hand, augmentation simply acknowledges the potential of AI systems as a tool to enhance teacher capacity to fulfill responsibilities as a mentor, designer, and orchestrator of learning experiences as opposed to a simple role as tester (Gentile et al, 2023; Ayyoub et al., in press, 2025). In this model, the teacher is still positioned at the center of the learning enterprise albeit a teacher reconfigured, employed only in the relational space, ethics, and interpretive role which may be more important than ever. Also stemming from literature Nakayama et al. (2025) champions that in order to realize the benefits of AI augmented pedagogy, teachers should example in the form of teacher case studies.

Research Objectives:

- To study the role of AI in automating administrative and routine tasks in education.
- To study how AI can enhance and support teaching practices by providing personalized learning experiences.
- To study the implications of these changes on the future of teaching and teacher preparation.

AI in Education: An Overview

Artificial Intelligence refers to a variety of technologies that allow machines to imitate human intelligence, e.g., machine learning, natural language processing, robotics etc. With regard to education, AI tools are being employed to automate administrative functions (i.e., grading, scheduling, data analytics) and serve to augment teaching through personalized learning, real-time feedback, and intelligent tutoring systems (Holmes et al., 2019).

Automation in Education

Automation is the application of AI to conduct repetitive, tedious tasks that do not require the involvement of a human. In education today, this may include:

• Automated Grading: AI can grade assignments, quizzes, and even open-ended responses. Automation reduces the time teachers utilize grading students' work addressing the efficiency question and provides students with more rapid feedback on their learning (Seldon & Abidoye, 2018).

• Emerging Data Analytics: AI systems process student performance to analyze data, offering educators insights into student learning progression and identification for when intervention may be needed.

• Scheduling and Administrative Work: AI systems can be utilized to schedule, take attendance, and organize lesson plans.

While undoubtedly these innovations add efficiency and reliability, weigh heavily on the concern of dehumanization of education, discrediting teacher's professional autonomy.

In an educational context, augmentation refers to the improvement of teaching and learning processes via AI tools. In the augmentation quality, it is important to note that AI technologies do not replace human teachers, but rather provide enhancements to the quality of teaching. Examples include:

- Personalized Learning: AI can personalize content and assessments for students, even adjusting in real time based on a student's pace and style of learning (Baker & Inventado, 2014).
- Intelligent Tutoring Systems: AI-moderated tutoring systems, such as Carnegie Learning, can assist students with difficult problems in a one-on-one fashion when they might otherwise require additional instructional time.
- Supporting Teachers: AI can support teachers by providing real time feedback on teacher-student interaction, which in turn can refine teachers' pedagogical strategies. Although the content can increase personalization and efficiency in teaching, they also require that teachers be proficient in technology and adaptable to new pedagogical and technological tools, which can be a challenge.

The Changing Role of Teachers

Teachers are the unique individuals who direct how AI strategies are integrated into classrooms. There are competing perspectives (Bates, 2019) around the future of AI and how it may transform teachers' roles in either empowering or limiting ways. On one hand, AI may help reduce the burden on teachers by taking care of mundane administrative processes and therefore give teachers more time to focus on pedagogy and building classroom engagement.

Research Design

In light of the exploratory aspect of the research, the best approach is a qualitative design. Qualitative research explores the complex experience, attitudes, and constructs in relation to teachers and also provides important evidence when investigating educational outcomes with AI.

Data Collection

- Literature Review: This document uses data from a literature review of study literature on AI and education, teachers, and the intersections of technology and pedagogy.

- Documentary Analysis: Reports, case studies and other documents discussing AI and education provide additional contextualized depth in the analysis.

Data Analysis

- Thematic Analysis: Uses thematic analysis to capture key themes regarding the impact of AI on teacher roles for purposes of modifying or supporting automation and/or augmentation.

- Conceptual Framework: The research will be positioned within theories of technology uptake (e.g. Technology Acceptance Model) and pedagogical change (e.g. Technological Pedagogical Content Knowledge) to provide implications for discussing the impacts of AI in teaching on the lives of the teachers.

Results

The literature can be synthesized into two categories - automation and augmentation.

Teaching Task Automation

Teachers expressed uncertainty regarding the automation of education. Many educational professionals see the potential in releasing some of the repetitive tasks and committing time towards lesson planning and to more directly engage with students. The automated grading and analytic instructional technologies received positive acknowledgement in their efficiency. However, some educators raised additional concerns about the lack of personal interaction with their students. Teachers also expressed concern that grading with AI might omit some elements of student work that would be identifiable to a human teacher.

Augmented Teaching Practice

AI tools that provide support for teaching, like intelligent tutors or personalized learning programs, were viewed as highly beneficial opportunities for teachers, especially as they related to increased student engagement and learning outcomes. Teachers mentioned that AI supports increased differentiated learning environments where the learning experience would

be more personalized to student's individualized needs. However, there was causation of challenges for teachers in that they had to be fluid in using newer technologies while encountering some pressure to keep up with the pace of change within the various AI tools.

Discussion

Integrating AI technology into education presents both great promise and challenges for educators. On the one hand, as educators increasingly automate some of their administrative work, efficiency and productivity will be increased.... at the same time some will be detrimentally concerned with the dehumanising of education. On the other hand, AI will continue to advance by supporting teaching practice and this could lead to a more positive narrative through support, such as personalised learning opportunities and intelligent tutoring systems that optimize teachers' abilities to engage students in valuable learning and skills development, not "but still warned that teachers' adoption of AI and AI technologies "will remain key in relation to the impact of AI on teaching practice." Ongoing professional development for educators will be essential in providing capacity and confidence in engaging with these or any other technologies. The AI agenda for education will importantly ensure that AI will be thought about and applied flexibly in order to preserve important human characteristics in education when providing an AI augmented educational experience. This qualitative study has demonstrated that AI (Artificial Intelligence) is re-inventing the educational landscape and work practice by changing teachers' role from knowledge transfer agents to being learning facilitators, along with a co-creation of educational experience. Most of the participants viewed AI enabled programs as adaptive learning technology, automated grading technology and virtual assistants as reducing the time needed for teachers to engage in administrative and mundane tasks, and returned that time to engage in teaching practice. This change reflects the trade-off between automation and augmentation: while automation is a replacement for some function, augmentation is a facilitator of teachers' augmented capabilities for personalized and reflective teaching. Teachers in the study expressed cautious optimism regarding the potential of AI. The broad perspective was that AI could be a partner to support data-informed decision-making, identify gaps in students' learning, and offer differentiation. For instance, automated systems for feedback can be seen as a on valuable element in large

classes where teachers cannot offer individual nuanced feedback. However, another perspective was expressed, and this is related to the depersonalization of learning and erosion of the teacher's professional judgment. Participants related that AI lacks emotional intelligence, empathy, and ethical awareness to nurture the qualities of holistic development that center on a human educator. Readiness and digital competency were another significant theme. While some educators expressed confidence in employing AI technologies, others expressed anxiety stemming from limited pedagogical training and unclear institutional guidelines. The need for ongoing professional development and a supportive structure to prepare teachers to engage critically with AI technology rather than adopt it passively, was another concern. Furthermore, data privacy, algorithmic bias, and disparities in access to AI were ethical and equity-related concerns being pointed out that warrant consideration for governance.

Conclusion

The study illustrates the transformative power of AI within education while complicated by an array of interactions between automation and augmentation. As AI continues to unfold, it seems inevitable that the future of education may redefine the roles of teachers as some tasks may be automated while others will be augmented. As is the case with educational change, educators will need to embrace that change, while continuing to be the heart of and the human connection, which is vital to effective teaching and learning. Thus, the findings from this qualitative study illuminate how Artificial Intelligence is changing education by not replacing the traditional roles of teachers but re-constructing them. Though automation has allowed AI to take care of the repetitive and administrative tasks, such as grading, attendance, or data management, the deeper advantage it holds is its ability to augment teachers' professional capacity. For this reason, teachers are still an integral part of the learning process, not as replaceable automatons, but as adaptive facilitators who teach, motivate and humanize the learning experience in increasingly digital classrooms. The educators who participated in the research had mixed feelings toward AI technologies. On the one hand, new technology can relieve some decision-making from heavy teaching workloads allowing educators to focus more on creativity, critical thinking, and emotional support for students. On the other hand, concerns of dehumanizing education, being overly reliant on technology, and losing professional autonomy are still strong.

This research indicates that the effectiveness of AI in teaching would be determined largely by finding the proper equilibrium of technological efficiency and human empathy within teaching and learning contexts. Of course, AI can personalize learning and provide real-time feedback to facilitators, but only educators are able to situate this within students' emotional, cultural, and ethical perspectives. "Augmentation rather than automation" feels like the most viable form of exit for teaching and AI. Rather than being in competition with each other for teacher's jobs, AI can be positioned as their co-equal partner who can help teachers make possible decisions that would allow their pedagogy to shift, improve, and expand what we currently think pedagogy is for adults and children. To implement this partnership requires educators to receive individualized professional development around their use of AI in addition to institutional support addressing safeguards and ethics that prioritize teachers to make critical decisions about their AI tools. Finally, educators must ensure in their partnerships with AI that equality of the access to use the technology, and transparent data use of algorithms does not lead to bias and inequity among students' learning outcomes. Overall, the changing nature of AI and their relations with teachers indicate a major shift from teacher to AI-awareness centered practice in education.

References

Ruziev, E. (2025). AI and the future of teacher roles: Automation vs augmentation. Journal of Multidisciplinary Bulletin, 8(1), 51-54. https://doi.org/10.5281/zenodo.14877244

Gentile, L., et al. (2023). Empowering educators: Operationalizing age-old learning principles using AI. Education Sciences, 15(3), 393. https://doi.org/10.3390/educsci15030393

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—Where are the educators?

International Journal of Educational Technology in Higher Education, 16, 1–27. https://doi.org/10.1186/s41239-019-0171-0

Ayyoub, A. M., Khlaif, Z. N., Shamali, M., Abu Eideh, B., Assali, A., Hattab, M. K., Barham, K. A., & Bsharat, T. R. K. (2025). Advancing higher education with GenAI: Factors influencing educator AI literacy. Frontiers in Education, 10, 1530721. https://doi.org/10.3389/feduc.2025.1530721

Lameras, P., & Arnab, S. (2022). Power to the teachers: An exploratory review on artificial intelligence in education. Information, 13(1), 14. https://doi.org/10.3390/info13010014

McKinsey & Company. (2023). Artificial intelligence in education: How will it impact K-12 teachers. https://www.mckinsey.com/industries/education/our-insights/how-artificial-intelligence-will-impact-k-12-teachers

Lameras, P., & Arnab, S. (2022). Power to the Teachers: An Exploratory Review on Artificial Intelligence in Education. *Information, 13*(1), 14. https://doi.org/10.3390/info13010014

Baker, R. S., & Inventado, P. S. (2014). Educational Data Mining and Learning Analytics. In Learning Analytics: From Research to Practice.

Bates, T. (2019). Teaching in a Digital Age: Guidelines for designing teaching and learning for a digital age. Tony Bates Associates Ltd.

Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Center for Curriculum Redesign.

Seldon, A., & Abidoye, R. (2018). The Fourth Education Revolution: Will Artificial Intelligence Liberate or Infantilise Humanity. University of Buckingham Press.

Selwyn, N. (2020). Should Robots Replace Teachers? AI and the Future of Education. Polity Press.