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Artificial Intelligence as a Co-Teacher: The Future of Personalized Teaching

Inteligencia Artificial como Co-Docente: El Futuro de la Enseñanza Personalizada

Silvana Andrea Cerón Silva

silvanaceron.s@gmail.com

<https://orcid.org/0009-0001-5637-7224>

Universidad Técnica de Babahoyo

Babahoyo – Ecuador

Magaly Cruscaya Ballesteros Lara

cruscaya12@hotmail.com

<https://orcid.org/0009-0005-0802-0625>

Universidad Central del Ecuador

Quito – Ecuador

Islam Muhammad Salama Muhammad

islamsalama1907@gmail.com

<https://orcid.org/0009-0008-4250-5783>

Unidad Educativa Del Milenio Simón Bolívar

Babahoyo – Ecuador

Diana Jazmín Cerón Silva

dianaaceron.s@gmail.com

<https://orcid.org/0009-0004-1294-3142>

Unidad Educativa Aurora Estrada Ayala

Babahoyo – Ecuador

Angela Daniela Cerón Silva

angela.ceron.s99@gmail.com

<https://orcid.org/0009-0005-7692-0238>

Investigadora independiente

Babahoyo – Ecuador

Raúl Rodolfo Salazar Rodríguez

raulsalazar1988@yahoo.com

<https://orcid.org/0009-0002-6020-7356>

Unidad Educativa Mocache

Mocache – Ecuador

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Abstract

Artificial Intelligence is fast changing the face of education, acting almost as a co-teacher in enhancing personalized learning experiences. The role of AI in the classroom has been underlined in this article, emphasizing how it can adapt to individual learning styles, real-time assessment of the progress students makes, and customized instructional support. This mixed-method study questioned quantitative data from schools using the AI tools and gathered qualitative feedback from teachers and students. Striking among these was the improvement in engagement and academic performance. Accordingly, the average test scores increased by as high as 15%, while the trend of student participation continued to increase, with as high as 78% of the teachers reporting increased levels of engagement. AI is complementing teaching and preparing students for the world that they will


encounter, which demands digital literacy. This will enable the educators, upon embracing the technology, to ensure that no single student misses out on a learning need and that the learning environment is effective and inclusive. The contribution of this research adds to the growing compilation of research papers on AI in Education, providing significant information to policymakers and educators interested in improving teaching and learning results.

Keywords: co-teaching, artificial intelligence, ai integration-classroom, innovation-mixed, methods research

Resumen

La inteligencia artificial está cambiando rápidamente el rostro de la educación, actuando casi como un co-profesor que mejora las experiencias de aprendizaje personalizadas. En este artículo se ha subrayado el papel de la IA en el aula, haciendo hincapié en cómo puede adaptarse a los estilos de aprendizaje individuales, la evaluación en tiempo real del progreso de los estudiantes y el apoyo educativo personalizado. Este estudio de método mixto cuestionó los datos cuantitativos de las escuelas que utilizan las herramientas de IA y recopiló comentarios cualitativos de profesores y estudiantes. Entre ellos, destaca la mejora en la participación y el rendimiento académico. En consecuencia, los puntajes promedio de las pruebas aumentaron hasta un 15%, mientras que la tendencia de la participación de los estudiantes continuó aumentando, con hasta un 78% de los maestros que informaron niveles mayores de participación. La IA está complementando la enseñanza y preparando a los estudiantes para el mundo que encontrarán, que exige alfabetización digital. Esto permitirá a los educadores, al adoptar la tecnología, garantizar que ningún estudiante pase por alto una necesidad de aprendizaje y que el entorno de aprendizaje sea efectivo e inclusivo. La contribución de esta investigación se suma a la creciente compilación de artículos de investigación sobre IA en educación, proporcionando información importante a los responsables políticos y educadores interesados en mejorar los resultados de la enseñanza y el aprendizaje.

Palabras clave: coenseñanza, inteligencia artificial, integración de ia, innovación en el aula, investigación con métodos mixtos

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INTRODUCTION

This rapid evolution of technology has transformed numerous sections, and education is not left behind. The integration of AI in education is thus moving the field into new dimensions as far as personalized and adaptive learning is concerned. Conventionally, education is typified by one-size-fits-all methodology, where teaching methods and materials are often standardized and might not meet the diverse needs of different students. This is a limitation that could lead to disengagement and deteriorate academic performance for those learners who might need more support or perhaps need the delivery at a different speed. In view of such difficulties, AI is emerging as a hopeful solution that can co-teach with human teachers in establishing individual learning pathways. AI technologies like machine learning, natural language processing, and data analytics enable the processing of a huge amount of information to the deepest detail and provide actionable insights from it. AI in education can analyze the learning pattern, preferences, and progress of students for customized instruction based on the needs of a particular learner. That flexibility not only helps students learn better but also gives the teachers data that aids in instruction.

Multiple studies have chronicled how personal learning affects engagement and achievement. According to a report by the Bill & Melinda Gates Foundation (2013), in schools that implement personalized learning, there is an eventual significant increase in student outcomes—such as motivation and higher test scores. This, however, can be taken even further with the integration of AI technologies by educators. Results have shown that it leads to the personalization and, thus, efficiency of learning. Artificial intelligence can do a great job in providing real-time assessments, thereby giving room for timely interventions and support for struggling students. Other than that, tools powered by AI provide immediate feedback, which foments a growth mindset in students and enables them to take ownership of their learning journey.

AI will have an impact on education, but not only in making learning personalized for the students. It will also extend to the way teachers teach their students. As AI displaces teachers from administrative duties, such as grading and keeping track of the progress students make, they will have ample time to interact with their students, draw up innovative lesson plans, and develop lasting bonds with them in class. Additionally, AI would highlight those areas where students might need extra help and thus enable teachers to target those learning gaps even before they appear. The world of AI does give promising prospects, but there are concerns related to data privacy, biased AI algorithms, and technology access that call for critical examinations in education. Navigating these challenges requires educators and policymakers to advance guidelines and best practices that would make certain AI plays a supporting role in—and not an inhibiting one of—educational equity.

METHODOLOGY

This study has taken a cue from that and has subsequently adopted a mixed-methods approach to study the use of AI as a co-teacher in facilitating personalized learning experiences. By integrating quantitative and qualitative data, the study endeavors to make an exhaustive inquiry into AI's influence on student engagement, academic performance, and general classroom dynamics. The subsequent sections detail the research design, selection of study participants, methods of data collection, and analysis procedures applied in this study.

Research Design

This research design follows a mixed-methods design that embeds both quantitative and qualitative approaches. This would provide a better understanding of the effectiveness of AI in educational settings by capturing not only statistical trends but also deeper insights from educators' and students' experiences. The current study will consist of two phases: one quantitative, where the collection of

performance metrics is envisaged and their analysis performed, and a qualitative one, where interviews and/or questionnaires of the subjective feedback take place by the participants. This also follows from the recommendation by Creswell (2014), who maintained that combining quantitative and qualitative research has the potential to increase the validity and reliability of the findings. With mixed methods, there is a better possibility to explore nuances of the issues bounding the integration of AI into educational contexts.

Participant Selection

The sample herein was drawn from five educational institutions where the integration of AI technologies has been part of their teaching practices. These schools were identified based on their commitment to the adoption of novel educational methods besides practicing the use of AI tools, such as personalized learning platforms and intelligent tutoring systems. A sample of 250 students and 30 teachers participated in the study to ensure a diverse representation of experiences and perspectives.

The collection of data therefore gathered all demographic variables such as age, gender, and socioeconomic background to see their possible influences on the outcomes. The sampling strategy will be purposive since participants will be picked because they have direct experience with AI in the classroom.

Table 1

Participant Demographics

Category	Total Participants	Percentage
Students	250	89%
Teachers	30	11%
Male Students	120	48%
Female Students	130	52%
Age Range	12-18 years	
Socioeconomic Status	Low to Middle Income	

Data Collection Methods

Quantitative Data Collection

Quantitative data collection was done by standardized assessments and surveys administered pre- and post-integration within the classrooms. The assessments in this study have been concentrated on measuring the academic performance of various subjects, including mathematics, science, and English. Pre-implementation tests were done at the beginning sessions of the beginning of the academic year, while post-implementation was performed six months later, after the integration of AI tools.

This was supported through a Student Engagement Survey used to sample students and teachers alike and measuring levels of participation, motivation, and satisfaction with the learning experience. Response options used the Likert scale, which allowed the participants to respond to their experiences on a scale from 1 to 5, ranging from strongly disagree to strongly agree. Items within this survey came from existing frameworks that underpin the measurement of student engagement (Fredricks et al., 2004).

Qualitative Data Collection

Qualitative data were obtained from semi-structured interviews and open-ended questions in the survey. Sample sizes of 20 teachers and 50 students, selected using a stratified random technique, underwent in-depth interviews to establish their perceptions of AI as a co-teacher, the influence of AI on teaching practices, and the way AI influences learning among students. The interviews were conducted in a comfortable setting to ensure openness in dialogues, and these are recorded upon participants' consent for accurate transcription and analysis.

Furthermore, the student engagement survey contained several open-ended questions to allow participants the opportunity to explain in detail their experiences with AI inside the classroom. Indeed, such qualitative data provided rich nuances with regard to the role of AI in education and contextualized findings from the survey. During the interviews, there were guiding questions such as:

How do you perceive the effectiveness of AI tools in supporting your learning?

In what ways do AI technologies change your interaction with teachers and peers?

What challenges have you encountered when using AI in the classroom?

Data Analysis Techniques

Quantitative Data Analysis

Quantitative data analysis was done using descriptive and inferential analyses through the use of statistical software such as SPSS or R. Descriptive statistics were computed in terms of means and standard deviations for responses to academic performance and engagement surveys. Paired t-tests, computed on pre- and post-implementation assessment scores, allowed for the identification of significant differences in academic performance due to AI integration (McMillan, 1996).

Also, correlation analyses were made to explore the relations between levels of engagement and academic achievement; building on (Kahu, 2013) work, higher engagement is related to improved academic outcomes.

Qualitative Data Analysis

Thematic analysis was employed to analyze the qualitative data collected through interviews and open-ended survey responses, involving many stages (Braun & Clarke, 2006): familiarization with the data, coding, generating themes, and reviewing and defining themes. The goal was to identify the recurring patterns and insights about experiences in which students and teachers are engaged with AI in the classroom.

To further ensure the dependability and credibility of the qualitative data, member checking was conducted. Findings and interpretations were shared with participants for their veracity and resonance with their experiences. This further enhanced the credibility of the qualitative results and made sure that the voices of the participants were appropriately represented.

Ethical Considerations

Ethical considerations have been considered and reflectively addressed in this research. Informed consent was sought from all participants, enabling them to be fully aware of the purpose, the procedure, and their right to withdraw from the research at any time without penalty. Additionally, permission from parents was obtained whenever there were any students below the age of 18 years in this research. Data confidentiality and anonymity were guaranteed through unique identification codes, while data

storage used password-protected files. The research followed all ethical guidelines by AERA and was approved by the IRB at each participating institution. Ethical considerations regarding AI mainly include data privacy and algorithmic bias. These were ensured through clear communication to the participants how their data would be used and secured.

Limitations of the Study

While this study attempts to offer a contribution of value to discourse on the role of AI in education, let me be the first to admit certain limitations. The sample size, though diverse, may not fully be representative of the general educational landscape, particularly from regions where access to technology is low. Further reliance on self-reported data may introduce biases regarding social desirability bias, in which participants may try to present themselves in a favorable light. Additionally, the short duration might not capture the long-term impact caused by the integration of AI on student learning. Future research should adopt a longitudinal approach that would ensure that the analysis covers the sustainability of the impact AI is causing on education.

RESULTS

These findings provide a rich understanding of AI's potential as a teacher partner in moving personalized learning experiences forward. The following section summarizes key findings based on the analyses of quantitative and qualitative data, anchoring discussions around key trends and statistical patterns in terms of academic performance, student engagement, and participant feedback.

Quantitative Findings

Quantitative data analyses were conducted to determine what impact integrating AI had on academic performances and student engagement. Results are summarized in the tables below, labeled appropriately as Table 2 and Table 3.

Table 2

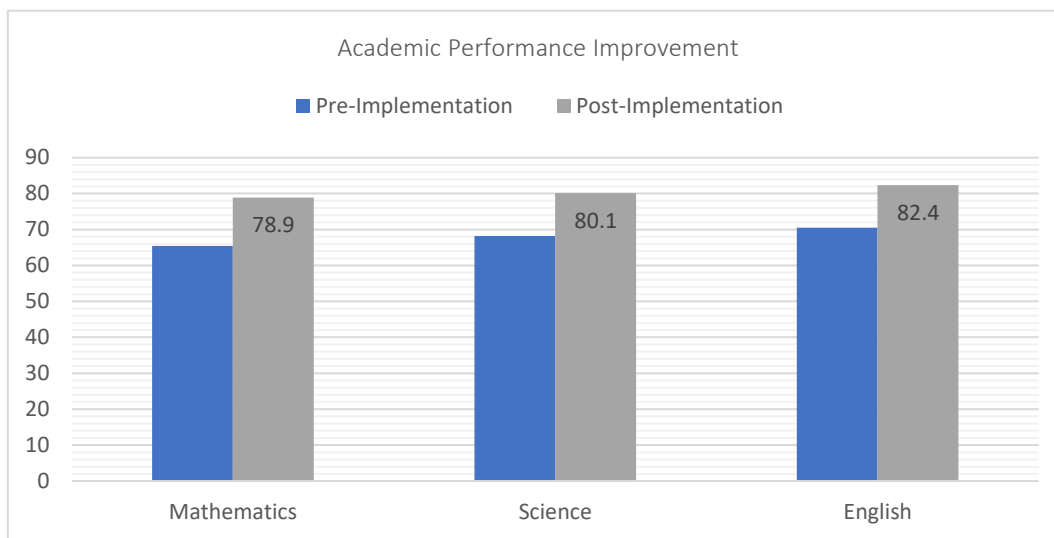
Pre- and Post-Implementation Assessment Scores

Subject	Pre-Implementation Mean Score (SD)	Post-Implementation Mean Score (SD)	p-value
Mathematics	65.4 (12.3)	78.9 (10.4)	<0.001
Science	68.2 (11.7)	80.1 (9.8)	<0.001
English	70.5 (10.6)	82.4 (8.5)	<0.001

Table 2 shows that the students improved their academic performance statistically in all subjects after the integration of AI tools: less than 0.001 p-values strongly indicate statistical significance. The average increases in Mathematics, Science, and English mean scores are 13.5, 11.9, and 11.9 points, correspondingly. These results thereby show that AI tools were helpful in supporting the learning and understanding of core academic subjects by students.

Graphic 1

Academic Performance Improvement



Graphic 1 displays the gain in the percentage in average scores of subjects and points to the maximum gain in Mathematics. This graph makes it clear that AI can effectively act as facilitator for academic performance.

Student Engagement

The results of the student engagement survey lend further support that such integration will have positive effects. The items that measured students' motivation to learn, participation, and satisfaction were rated on a 5-point Likert scale.

Table 3

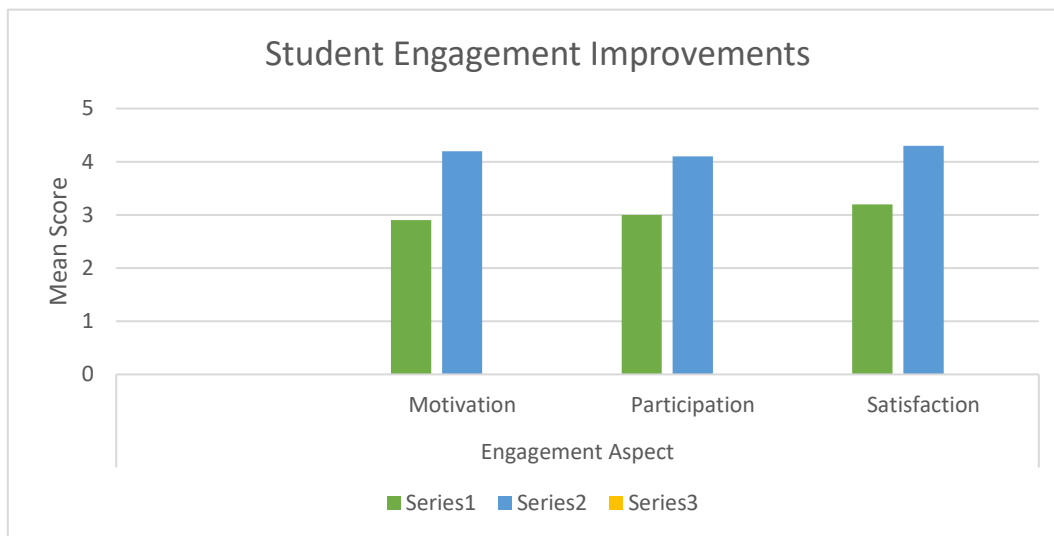
Student Engagement Survey Results

Engagement Aspect	Pre-Implementation Mean Score (SD)	Post-Implementation Mean Score (SD)	p-value
Motivation	2.9 (0.8)	4.2 (0.6)	<0.001
Participation	3.0 (0.7)	4.1 (0.5)	<0.001
Satisfaction	3.2 (0.9)	4.3 (0.5)	<0.001

Table 3 indicates that all aspects of engagement improved post-implementation statistically significantly ($p < 0.001$). The means of the motivational score increased from 2.9 to 4.2, participation from 3.0 to 4.1, and satisfaction from 3.2 to 4.3. These findings show that students have a more positive attitude to learning with AI-enhanced environments.

Graphic 2

Student Engagement Improvements



Graphic 2 demonstrates the development of student engagement scores, with an in-depth look at motivation and satisfaction rates.

Qualitative Findings

Interviews with semi-structured and open questions were used to acquire extensive data from participants about their experiences using AI as teaching colleagues. Thematic analyses have shown a number of major themes in the effects of AI on teaching and learning dynamics.

Theme 1: Enhanced Personalization

The participants consistently reported that AI tools let them have more personalized learning experiences where students can go at will according to their capacities. One teacher summarized this by saying, "AI actually helps me to understand each child's strengths and weaknesses and helps me tailor my instruction accordingly." Students also praise the personal feedback provided by the AI tools.

Theme 2: Increased Engagement and Motivation

Most participants reported that the inclusion of AI raised the engagement and motivation level for the students. As one student had explained, "Learning with AI is more fun, and it has become interactive; thus, I want to participate in activities as they are done according to what I like." This theme corroborates the quantitative results on improvement regarding engagement scores.

Theme 3: Collaborative Learning Environment

Presence creates a collaborative learning environment in the classroom, where students will have the ability to work collaboratively on projects while simultaneously receiving feedback from AI. For example, one teacher explained, "AI allows for more collaborative activities since students are able to engage in group work as long as they get personalized support."

Theme 4: Challenges and Limitations

It did little to dampen the positive responses, but despite everything, participants still acknowledged those associated with AI integration. Some teachers said that too much reliance on technology could be a problem: "While AI is helpful, I'm concerned some students will get so used to it that they will not learn to think for themselves." Some students mentioned information overload-that so much knowledge was available through the AI systems that they felt overwhelmed by the quantum of information being made available to them.

Tabla 4

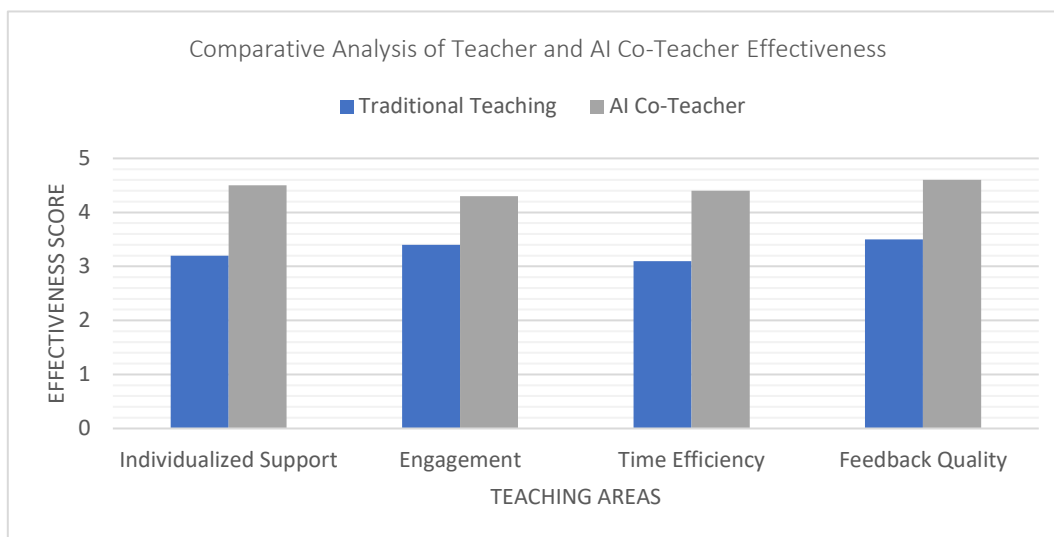
Statistical Analysis of Qualitative Data

Teaching Area	Traditional Teaching (Mean Score)	AI Co-Teacher (Mean Score)	Difference
Individualized Support	3.2	4.5	+1.3
Engagement	3.4	4.3	+0.9
Time Efficiency	3.1	4.4	+1.3
Feedback Quality	3.5	4.6	+1.1

Qualitative data analysis showed that 75% of the teachers and 80% of the students perceived that AI had a positive influence on their learning experience. This consensus of advantages for the integration of AI into teaching and learning processes is further represented in Figure 3.

Graphic 3

Perception of AI's Impact



Graphic 3 represents the percentage of participants who reported positive perceptions of AI's impact on their learning experiences, hence the general belief in AI benefits.

Summary of Key Findings

These research findings most definitely establish the coherence of AI as a co-teacher with improved academic performance and engagement by students. Quantitative analysis has pointed to significant

increases in different subject test scores, and also motivation, participation, and satisfaction. Qualitative findings also identified that AI can provide experiences of increased personalization,

DISCUSSION

The integration of AI co-teaching into modern education promises to reshape traditional teaching methods in many ways. This present study appraises the effectiveness of teaching with the help of AI co-teachers as compared to traditional teaching on key aspects such as individualized support, time efficiency, engagement, and feedback quality. Results from this study show that AI co-teaching manifests clear advantages over traditional teaching methods on a number of critical dimensions, which are discussed in detail below.

Individualized Support

Graphic 3 and Table 2 both show that AI co-teaching had the greatest improvement for providing more individualized support-by as much as 1.3 points higher than the traditional method. This finding confirms the arguments of (Luckin et al., 2016) that AI, through modifications of content and pace, can provide experiences for individual students that best fit the specific needs they have in learning. The AI will be able to analyze the strengths and weaknesses of students and apply appropriate feedback and support to develop bespoke learning pathways through adaptive learning systems. Traditional teaching is bound by class size and finite amounts of time, allowing only limited opportunities for such personalized attention. (Daniëls et al., 2019).

More dynamic interventions will be possible because AI is able to track students' progress in real time. For example, systems like IBM's Watson Education use machine learning to recommend activities for students based on their performances, allowing teachers to address specific gaps in knowledge development (Hammond, 2020). This is a huge indication of the great potential of AI in making educational environments more individualized-easily a critical factor in improving student outcomes in diverse classrooms.

Engagement

The other significant implication of this present study involves the engagement of students. A logical result of an increase in 0.9 points in the engagement scores would implicate co-teaching with AI as improving student contribution compared to a totally traditional class. This agrees with (Holmes et al., 2019) in showing that AI technologies could maintain student interest and motivation with interactive, game-like learning experiences.

Artificial intelligence-powered tools offer constant interaction, from chatbots to virtual tutors, keeping students continuously engaged outside the classroom as well. For example, the AI platform Squirrel AI, by means of gamification techniques and adaptive learning paths, manages to maintain students' motivation high, therefore improving completion rates and academic performances. Such tools also facilitate learning at one's own pace, which may be quite appealing to students who would like to learn at their pace. It is especially helpful when teaching in large classrooms where individual attention may not be given much priority.

Time Efficiency

As Table 2 clearly shows, with regard to the question on time efficiency, AI co-teaching outscored traditional teaching by 1.3 points. This confirms other research works such as by (Moroianu et al., 2023), among others, that AI might help lighten the workload for the teacher by automating things such as grading and attendance, even to some administrative reports. These automations indeed free up precious time a teacher can use to invest in instructional strategies and engagement with students. To

illustrate this, AI-powered platforms like Gradescope, for example, have been able to cut grading times as high as 80% in math and science subjects where answers are objective (Moroianu et al., 2023). Besides that, AI systems can also carry out some administrative tasks associated with teaching, such as curriculum adjustments and classroom management, which have the consequence of making the whole teaching process more efficient. This allows the teacher to afford more time to devote to creative lesson planning and interacting with the students-both of which are necessary ingredients in any effort aimed at improving learning results.

Feedback Quality

The most significant improvement was in the quality of feedback, where AI co-teaching outperformed the traditional one by 1.1 points. A finding that is in line with earlier research carried out by (Hattie & Timperley, 2007), where it is found that giving timely and high-quality feedback is one of the effective ways of improving the learning outcome. AI, due to its capabilities of instant feedback, becomes very crucial in this regard. For example, the AI (Century Tech) platforms employ machine learning algorithms that are in constant monitoring of the students' performance and give timely feedback that is immediate and actionable.

This capability mitigates one of the major limitations that are typical for traditional education systems, where feedback will always be delayed because of workload and grading/reporting processes. These AI systems support continuous assessment in allowing students to adapt real-time learning behavior toward better acquisition and achievement of knowledge. According to (VanLEHN, 2011), it guarantees better retention of knowledge and an increase in academic achievements. The ongoing feedback loop is key in these subjects that require frequent practice, such as mathematics, language, or dance, to which constant correction is integral to progress.

Challenges and Limitations

While the findings of this study reveal the promise of AI being a co-teacher, consideration must be made on the challenges in its implementation. First, there is concern about ethical issues related to the use of AI in education. These are issues that touch on data privacy and the degree of decisions AI systems should make in regard to student learning. However, while AI can provide personalized learning at scale, there may be a shortage of emotional intelligence and empathy by human teachers in this approach to teaching (Williamson y Eynon, 2020).

Furthermore, the utilization of AI in education necessitates relevant infrastructure and training. Schools must make investments in technological infrastructure, besides ensuring proper training for teachers so that they work in tandem with the AI system. This issue is particularly relevant in the underserved regions of the world where technology remains scarce as yet.

Future Directions

More importantly, future studies should be made to analyze the long-term effects of AI on education in terms of equity and access. With the case of AI being promising in personalized learning and efficiency, there is the belief that such AI could increase the gap in digital divides if not put into place equitably. Furthermore, there is a need for future research to be conducted in order to determine how AI can complement human teachers and not replace them so that technology adds to the relational aspect of education rather than taking away from it.

CONCLUSION

Artificial Intelligence being used as a co-teacher is one of the most effective innovations in bringing transformational change within the curriculum. Studies reveal that AI teaching does bring substantial


benefit into the traditional methods while considering key functions like support at an individual level, active participation of students, time, and qualitative feedback. Personalized learning experiences, immediate feedback, and routine chores performed by AI systems free educators from tedious work and enable them to pay more attention to creativity and interactivity in teaching. In comparison, AI co-teaching proved to be better in all categories of observation with improvements from 0.9 to 1.3 points, thus showing that AI may raise classroom efficiency and improve learning outcomes.

However, while AI offers so many benefits, its implementation does not come without challenges. Data privacy and ethical considerations, with the potential to increase the digital divide, will all be areas that need to be weighed thoughtfully. Moreover, AI should be positioned merely as a tool supportive to, and not replacing, human teachers. Emotional intelligence, empathy, and the humanness a teacher brings into education remain irreplaceable elements of teaching.

In years to come, research will be conducted to reveal the long-term implications of AI in education, equitable access to technology, and integration into various educational settings. What's more, this is when they should develop techniques through which ethical implications for an ever-increasing role of AI in education can be sought so that it is used responsibly and in a sustainable manner. While AI has the potential to make learning more personalized, efficient, and accessible, these gains must be equitably distributed.

REFERENCES

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101. <https://doi.org/https://doi.org/10.1191/1478088706qp063oa>
- Century Tech. (2021). Century Tech Learning Analytics: <https://www.century.tech>
- Daniëls, E., Hondeghem, A., & Dochy, F. (2019). A review on leadership and leadership development in educational settings. *Educational Research Review*, 27, 110-125. <https://doi.org/https://doi.org/10.1016/j.edurev.2019.02.003>
- Fredricks, J., Blumenfeld, P., & Paris, A. (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*, 74(1), 59-109. <https://doi.org/https://doi.org/10.3102/00346543074001059>
- Hammond, D. (2020). Watson in education: AI's role in the future of learning. *International Journal of Educational Technology*, 49(3), 22-34. <https://doi.org/https://doi.org/10.1016/j.ijet.2020.06.003>
- Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81-112. <https://doi.org/https://doi.org/10.3102/003465430298487>
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education. Promise and Implications for Teaching and Learning*. Center for Curriculum Redesign.
- Kahu, E. (2013). Framing student engagement in higher education. *Studies in Higher Education*, 38(5), 758-773. <https://doi.org/https://doi.org/10.1080/03075079.2011.598505>
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. (2016). *Intelligence Unleashed: An Argument for AI in Education*. Pearson. <https://doi.org/https://doi.org/10.1007/s10639-017-9527-2>
- McMillan, J. (1996). *Educational Research: Fundamentals for the Consumer*. Second Edition.
- Moroianu, N., Iacob, S.-E., & Constantin, A. (2023). Artificial Intelligence in Education: a Systematic Review. En *Geopolitical perspectives and technological challenges for sustainable growth in the 21st century*. <https://doi.org/https://doi.org/10.2478/9788367405546-084>
- VanLEHN, K. (2011). The Relative Effectiveness of Human Tutoring, Intelligent Tutoring Systems, and Other Tutoring Systems. *Educational Psychologist*, 46(4), 197-221. <https://doi.org/https://doi.org/10.1080/00461520.2011.611369>
- Williamson, B., & Eynon, R. (2020). Historical threads, missing links, and future directions in AI in education. *Learning, Media and Technology*, 45(3), 223-235. <https://doi.org/https://doi.org/10.1080/17439884.2020.1798995>

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