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Article

Generative Artificial Intelligence Utilization and Productivity Among English Teachers in Selected Private Higher Education Institutions in Laguna

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Abstract: The integration of Generative Artificial Intelligence (AI) in education has emerged as a transformative force in instructional methodologies, particularly in English language teaching. This study examined the impact of generative AI tools on the productivity of English language teachers in selected private higher education institutions in Laguna, Philippines. With the rapid advancement of educational technologies, especially AI-driven platforms, the research aimed to assess the extent of AI utilization, frequency of use, training received by educators, and how these factors influenced instructional efficiency, time management, student engagement, and learning outcomes. A quantitative research design was utilized, and data were collected through a survey questionnaire administered to 30 English teachers from various private institutions. The data were analyzed using descriptive and inferential statistical methods.Grounded in the theory of Technological Determinism, the research employed a quantitative correlational design to determine the relationship between AI usage and teacher productivity. The findings revealed a moderate positive correlation ($r = 0.409$, $p = 0.025$) between AI utilization and productivity, indicating that teachers who actively integrated AI tools experienced improved lesson planning efficiency, greater student interaction, and better academic outcomes. The study further emphasized the critical role of adequate training in maximizing the potential of generative AI, as well-trained teachers were found to implement AI more effectively and confidently. Moreover, the results were consistent with global research that highlights AI's capacity to support personalized learning, reduce administrative workload, and enhance adaptive instruction. Despite these benefits, challenges such as insufficient institutional support, lack of clear policy frameworks, and limited digital literacy were identified. Therefore, the study recommended implementing comprehensive training programs, developing ethical guidelines and policies, and investing in digital infrastructure to support AI integration. Finally, this research contributed valuable insights to the evolving discourse on educational technology and serves as a guide for institutions and policymakers aiming to enhance teaching practices through AI.

Keywords: Generative AI, English Language Teaching, Teacher Productivity, Technological Determinism, AI Integration, Lesson Planning Efficiency, Student Engagement

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1. Introduction

The integration of Generative Artificial Intelligence (AI) in education has become a pivotal area of research, particularly in advancing Sustainable Development Goal 4 (SDG 4), which promotes inclusive and equitable quality education (UNESCO, 2024). AI-driven tools present opportunities to enhance teacher productivity, student engagement, and instructional efficiency, addressing disparities in educational access and optimizing

learning outcomes. However, these technological innovations also introduce ethical concerns and pedagogical challenges that educators must navigate in adapting to AI-enhanced teaching methodologies (Seo, 2023).

Among various educational fields, English language instruction has emerged as a focal point for AI integration, given its role in global communication and knowledge exchange. Studies such as Madjid & Garagaparthi (2024) highlighted both the benefits and challenges of using generative AI tools like ChatGPT, which streamline lesson planning and content development while requiring pedagogical modifications to ensure effective implementation. The Philippines, in particular, has witnessed growing interest in AI-powered education, with institutions such as the University of the Philippines leveraging AI for instructional innovation and digital learning initiatives. Despite these advancements, Philippine universities emphasize the distinction between learning and education, asserting that AI should complement rather than replace holistic student development (Vinuesa et al., 2024).

In comparison, developed nations have adopted more structured AI implementation strategies. For instance, the United Kingdom reports that 78% of English teachers regularly use AI for differentiated instruction, while Sweden mandates AI literacy training for new educators. In South Korea, AI-assisted grading systems have reduced administrative workload by 45%, reinforcing AI's role as a support tool rather than a replacement for educators (Department for Education UK, 2023). The ASEAN region also provides relevant benchmarks for Philippine higher education, with Malaysia's AI for English program demonstrating a 28% improvement in student writing outcomes and Thailand's Ministry of Education training over 5,000 English instructors in prompt engineering to boost teaching productivity (Ministry of Education Thailand, 2023).

Within the Philippine education landscape, policies such as the Department of Education's National AI Strategy Roadmap (2021-2025) (DepEd Order No. 34) and CHED Memorandum Orders (CMO No. 4, s. 2023) provide frameworks for AI integration in academic institutions. However, implementation remains uneven, particularly in private higher education institutions in Laguna, where universities like De La Salle University-Science and Technology Complex and Don Bosco College serve as case studies for examining AI adoption in educational settings. Although faculty at DLSU-STC have reported a 37% reduction in lesson planning time through AI assistance (De La Salle University, 2025), challenges related to limited institutional training and concerns over academic rigor persist (Laguna Provincial Education Office, 2023).

Beyond efficiency, generative AI holds equity-enhancing potential in education. Studies by UNICEF (2022) suggest that AI can bridge educational gaps, providing students—especially those in underserved areas—with access to quality resources and personalized learning support. However, barriers such as infrastructure limitations, digital literacy gaps, and resistance to AI adoption remain prevalent in private higher education institutions (Chan, 2023). This highlights the necessity for contextualized AI integration strategies, ensuring that AI applications align with Filipino educational needs, cultural considerations, and institutional priorities (Estrellado & Miranda, 2023).

Grounded in the theory of Technological Determinism, this study explored how Generative AI influences instructional methodologies, teacher productivity, and student learning experiences within private higher education institutions in Laguna. Technological Determinism asserted that technological advancements directly shape educational practices, societal behaviors, and institutional frameworks. Through a descriptive quantitative research design, this study examined key productivity metrics—including time efficiency in lesson planning, improvements in student engagement, and student performance outcomes—offering actionable insights for educators, policymakers, and academic institutions navigating AI adoption in Philippine higher education.

2. Materials and Methods

The study employed a descriptive quantitative design to analyze the utilization of Generative Artificial Intelligence (AI) and its impact on the productivity of English teachers in selected private higher education institutions in Laguna. A researcher-made online survey questionnaire, adapted from the "Questionnaire on Faculty Use of Technology for Teaching and Learning" by Mishra et al. (2016), was used as the primary data-gathering tool. The survey consisted of three parts: (1) demographic profile, including number of subjects handle, number of students taught, and years of teaching experience; (2) level of generative AI utilization, covering aspects such as text generation, image creation, grammar assistance, and content summarization tools; and (3) perceived impact on productivity, particularly in terms of lesson planning efficiency, student engagement, and learning outcomes.

The instrument was validated by three experts in English language education and one licensed psychometrician, whose feedback was incorporated to refine and finalize the questionnaire. Following approval from the institutional Dean, the validated instrument was distributed online to 30 English teachers from selected private higher education institutions in Laguna, Philippines.

Statistical analyses were conducted using Google Sheets and Microsoft Excel. The study employed various statistical treatments, including frequency and percentage distribution, weighted mean based on a four-point Likert scale, standard deviation, and Pearson's Correlation Coefficient (r). Statistical significance was assessed using superscripts, where *P<0.05 indicated significance at the 5% level and **P<0.01 denoted significance at the 1% level. For example, findings revealed a moderate positive correlation between AI utilization and teacher productivity (r = 0.409, *P<0.05).

Ethical clearance for the study was granted by the institution's research office, ensuring adherence to ethical research standards. Informed consent was obtained from all participants before data collection. Participation in the study was entirely voluntary, with no compensation provided. The confidentiality of participant data was safeguarded in compliance with the Data Privacy Act of 2012, with personal data securely stored using Microsoft Word and USB drives. To further ensure data protection, all collected information will be retained for one year before being securely destroyed.

3. Results

Table 1. Correlation Matrix Between AI Utilization and Teacher Productivity.

		AI Utilization	Productivity
AI Utilization	Pearson's r	—	
	df p-value	—	
		—	
Productivity	Pearson's r	0.409*	—
	df	28	—
	p-value	0.025	—

Footnote. * p < .05, ** p < .01, *** p < .001

As shown in Table 1, there is a statistically significant moderate positive correlation between AI utilization and teacher productivity (r = 0.409, p < *.05).*

The correlation matrix presented the relationship between AI utilization—including generative AI tools (2.1), frequency of AI use (2.2), and training received on AI integration (2.3)—and teacher productivity—measured by time spent on lesson planning (3.1),

student engagement metrics (3.2), and improvement in student performance outcomes (3.3).

The analysis of the overall mean scores for AI utilization and teacher productivity confirmed a moderate positive correlation ($r = 0.409$, $p < 0.05$*), indicating that higher AI utilization was linked to increased productivity. As generative AI adoption rises, educators experience greater efficiency in lesson planning, enhanced student engagement, and improved learning outcomes.

Statistical significance ($p = 0.025$, $p < 0.05$*) supported the conclusion that AI positively impacts instructional efficiency, aligning with research by Richards & Rodgers (2022), who highlighted AI's role in reducing time spent on administrative tasks, allowing teachers to focus on student-centered instruction. Similarly, Yu & Yunyun (2023) found that AI integration leads to systemic transformations in teaching, further reinforcing its practical benefits in education.

4. Discussion

The study revealed a moderate positive correlation ($r = 0.409$, $p < 0.05$*) between AI utilization and teacher productivity, indicating that increased AI adoption enhances lesson planning efficiency, student engagement, and learning outcomes. This aligned with research by Richards & Rodgers (2022), who argued that AI-driven educational technologies streamline instructional processes, reducing the burden of repetitive administrative tasks and allowing educators to focus on student-centered instruction.

Moreover, generative AI significantly reduced lesson planning time, with teachers reporting a 37% decrease in preparation time. This improvement is consistent with findings by Mollick & Mollick (2023), who highlighted AI's ability to automate content creation and assist in structuring lessons effectively. The study confirmed prior assertions by Luckin et al. (2021) that AI-powered tools optimize instructional planning by providing adaptive resources tailored to learning objectives. However, Huang et al. (2020) noted that AI-generated lesson plans sometimes require teacher intervention to ensure pedagogical alignment, which aligned with the present study's findings that some teachers still experience challenges in adapting AI-generated materials to specific student needs.

Similarly, AI-powered learning tools were found to enhance student participation and motivation, a finding consistent with research by Holmes et al. (2021), who highlighted AI's role in fostering interactive and engaging learning environments. However, personalized learning experiences showed no significant impact, contrasting with Zawacki-Richter et al. (2019), who suggested AI's potential in tailoring educational content. This discrepancy could be attributed to inconsistent implementation strategies or limited teacher training in AI customization for diverse learning needs, as previously noted by Howard et al. (2021).

Furthermore, the study found strong improvements in writing and communication skills, with teachers reporting enhanced student creativity and critical thinking due to AI integration. This supports Kukulska-Hulme (2020), who emphasized AI's role in refining language proficiency and cognitive development. However, AI-generated personalized feedback showed no impact, contradicting findings by Zheng et al. (2021), who argued that adaptive AI assessments improve student performance. The inconsistency suggests that the current AI feedback models may not yet be fully optimized for individualized student needs, requiring further refinement in AI-driven learning analytics and automated feedback accuracy.

In light of these findings, AI's transformative role in education, particularly in efficiency and engagement. However, areas such as adaptive learning and personalized assessment still require improvements to match the effectiveness seen in AI-driven education initiatives in the UK, South Korea, and Malaysia (Ministry of Education Thailand, 2023; Department for Education UK, 2023). The study reinforced Technological

Determinism, affirming that AI shapes educational practices but requires institutional support, structured training programs, and ethical safeguards for successful implementation.

In conclusion, generative AI demonstrates substantial benefits in lesson planning and student engagement, but its effectiveness in personalized learning and feedback mechanisms remains limited. Future studies should explore more advanced AI-driven teaching models and evaluate long-term impacts on classroom instruction. For optimal AI utilization, educator training and strategic policy development will be critical in bridging current gaps in implementation.

5. Conclusion

Based on the results of the study, the following conclusions were formulated:

To begin with, the statistical analysis, using Pearson's correlation coefficient ($r = 0.409^*$, $p = 0.025^*$), revealed a moderate positive relationship between AI utilization and teacher productivity. This significant correlation suggested that increased engagement with generative AI tools enhanced instructional efficiency and student learning experiences.

Moreover, AI-powered tools had proven effective in reducing time spent on lesson planning ($M = 3.56$) and material preparation ($M = 3.56$), which allowed teachers to dedicate more time to pedagogical tasks. Additionally, generative AI had positively impacted writing skills ($M = 4.00$) and creative thinking development ($M = 4.00$), though it remained limited in providing personalized feedback ($M = 2.00$), which needed reinforcement in its role as a supplementary tool rather than a replacement for human instruction.

Additionally, these findings highlight that while AI adoption improves efficiency, teacher productivity is also shaped by other contextual factors, such as professional expertise, classroom environment, and institutional support. Effective AI integration requires a holistic approach, accounting for these broader influences.

Finally , the results align with Technological Determinism, emphasizing that AI tools actively shape instructional practices, though their effectiveness depends on implementation strategies and educator involvement.

As a result, the findings aligned with Technological Determinism, confirming that advancements in AI are actively shaping instructional practices. However, its effectiveness depends on strategic implementation, teacher training, and institutional support. This study contributed to the growing discourse on AI-driven transformation in education, providing actionable insights for educators, policymakers, and institutions seeking to maximize AI's benefits while maintaining pedagogical integrity.

Given these insights, efforts should focus on strengthening AI training programs, refining AI-generated feedback mechanisms, and establishing ethical and policy-driven AI integration strategies. By doing so, private higher education institutions can harness AI's potential to enhance teacher productivity, optimize lesson planning, and improve student engagement and learning outcomes, ensuring a balanced and effective AI adoption in Philippine higher education.

Ultimately, this study confirmed that generative AI significantly enhanced teacher productivity, particularly in lesson planning efficiency and student engagement. However, its effectiveness would still depend on strategic implementation, institutional support, and complementary human expertise.

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