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EXPLORING TEACHERS' PERCEPTIONS OF ARTIFICIAL INTELLIGENCE-POWERED EDUCATIONAL TOOLS IN THE CLASSROOM

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Abstract

This study, titled "Exploring Teachers' Perceptions of Artificial Intelligence-Powered Educational Tools in the Classroom," explores the experiences and perceptions of 12 public secondary school teachers from Pio Duran West District for the School Year 2024–2025. Employing a qualitative phenomenological research design, the study collected data through focus group discussions, questionnaires, and observations to examine teachers' perceptions regarding the effectiveness, challenges, and impact of AI-powered educational tools on classroom instruction and student learning. The study aimed to provide a deeper understanding of how AI influences teaching practices and student engagement in real classroom settings.

The findings reveal that teachers generally perceive AI-powered educational tools as effective in enhancing student engagement, learning, and accessibility. AI facilitates personalized learning experiences, provides real-time feedback, and fosters a more interactive classroom environment. However, despite these benefits, teachers face significant challenges, including technical limitations, lack of adequate training, concerns over ethical issues such as data privacy, and inequalities in access to digital resources. Teachers expressed cautious optimism toward the adoption of AI, recognizing its potential while also acknowledging the risks associated with its misuse and its impact on human interaction in education.

The study concludes that while AI tools offer promising benefits to enhance instructional practices and student outcomes, their successful integration depends largely on teachers' preparedness, professional development, institutional support, and ethical safeguards. Teachers must be equipped with the necessary training and resources to effectively incorporate AI technologies into their pedagogy.

Additionally, maintaining a balanced approach that preserves meaningful teacher-student interaction while leveraging AI's capabilities is critical to achieving positive educational outcomes.

Based on the findings, the study recommends that educational institutions provide comprehensive training programs for teachers, improve digital infrastructure, promote equitable access to AI tools, and establish clear ethical guidelines for AI use in schools. Collaboration between educators, policymakers, and EdTech developers is essential to ensure responsible AI integration. Future research is encouraged to explore the perspectives of students and assess the long-term educational impacts of AI-powered learning technologies.

Keywords: Academic Journey, Aemilianum College Inc., Career Artificial Intelligence (AI), AI-Powered Educational Tools, Educational Technology, Ethical Concerns in AI, Technology Integration, Digital Education

Introduction

Integration of Artificial Intelligence (AI) into education has introduced a series of innovative units such as intelligent tutoring systems, automated grading software and adaptive learning platforms, such as direct supervisor, to streamline administrative tasks and offer real times reactions designed for these technologies they have the ability to improve Students' involvement and improve learning outcomes to grading and manage grading and response effectively for individual needs. However, the efficiency of AI-controlled equipment depends much more on how teachers perceive and incorporate them in the teaching practice. Teachers' perspectives, preparedness and past experiences with technology affect AI in the class and affect successful implementation. It is important to understand these conditions, as they directly shape the way AI is integrated into education and determine its effect on teaching and learning outcomes.

According to various international reports, Artificial Intelligence in Education (AIEd) is one of the currently emerging fields in educational technology. Out of 2,656 initially identified publications for the period between 2007 and 2018, 146 articles were included for final synthesis, according to explicit inclusion and exclusion criteria. (Richter et al. (2019)). Systematic review of research on artificial intelligence applications in higher education explores various AI applications in education, including teacher perceptions. The study emphasizes both enthusiasm for AI's ability to have learning and concerns about moral and educational challenges. This concludes that although the AI student can increase commitment, teachers often feel weak to integrate such units effectively. The research also emphasizes the importance of professional development programs to equip AI's capacity in the class to maximize the capacity of AI. One of the most important findings in the study is that although many teachers express enthusiasm for AI's ability to learn experiences for the needs of AI integrate.

The study shows that AI is still a major obstacle to using technical knowledge and educational training in AI, and makes AI-controlled decision-making that makes credibility, justice and concern about the concern. Teachers are concerned about the moral implications of AI, including the privacy of data, algorithmic level and a potential reduction of human monitoring in direct processes.

The use of AI tools is still uncommon among teachers. (MK. Diliberti, et. al, 2019) The adoption of Artificial Intelligence (AI)-powered educational tools in national contexts, particularly in the United States, has been a subject of extensive research. These devices are being used to automate administrative functions in K-12 and Higher Education, Personalize Students and Provide Real-Time Response. Teachers have expressed mixed assumptions about ai adoption, some is a way to improve it efficiency and student engagement, while others are concerned about abut issues equally digital access, morality ideas and potential lack of human interaction in education. A look at with the aid of the RAND Corporation, titled "Using Artificial Intelligence Tools in K–12 Classrooms," explored how AI-powered technology are integrated into schooling. The study discovered that AI is generally used for automating grading, analyzing scholar performance statistics, and generating customized mastering substances. Teachers in properly-funded schools mentioned fine reports with AI, noting that it helped reduce their workload and allowed them to recognition greater on interactive teaching. However, instructors in underprivileged faculties confronted large demanding situations, inclusive of confined get admission to to AI tools, lack of virtual infrastructure, and insufficient training. The examine emphasised the significance of equitable get admission to to AI technologies and the want for expert development packages to assist educators combine AI correctly into their lecture rooms.

In the Philippines, research on AI-powered educational tools is still in its early stages. However, the ongoing studies and initiatives have been taken to detect teachers' perceptions and preparedness to integrate AI into class settings. Such a study, "Pre-Service Teacher Technology Acceptance of Artificial Intelligence Applications in Education," investigated factors affecting the AI-adoption among future teachers in central image. Research that investigated 400 freight service teachers showed that alleged use and ease of use affected their desire to use AI-controlled educational equipment. However, factors such as subjective criteria, teaching experience and volunteerism did not have a strong impact on their acceptance of AI technologies. Conclusions suggest that in education, AI-adoption requires targeted training and consciousness programs to address misconceptions and build the confidence to use a broad teaching equipment. (Alejandro. et, al. 2024) The Philippine Department for Education (Deped) searches for the use of AI-powered educational tools to learn and streamline administrative functions. Pilot programs and initiatives, such as A-assisted teaching systems and automated evaluation tools, are introduced to evaluate their impact on learning outcomes. While teachers recognize the potential benefits of AI, digital infrastructure, access and concern for teacher education are still significant

obstacles to using. Studies conducted in urban and rural areas indicate that although technically advanced schools are more open to AI-adoption, resource-limited settings express hesitation due to proper training and lack of support.

This study aims to explore teachers' perceptions of AI-powered educational tools in the classroom, investigating their effectiveness, demanding situations, and basic impact on coaching and studying. By analyzing teachers' reports and viewpoints, this study seeks to make contributions treasured insights into AI's evolving role in education and tell future strategies for its implementation.

Statement of the Problem

This study aims to examine teachers' perspectives on the effectiveness, challenges, and impact of AI-powered educational tools in classroom instruction. Specifically, it seeks to answer the following questions:

1. How do teachers perceive the effectiveness of AI-powered educational tools in enhancing student learning and engagement?
2. What challenges do teachers face in integrating AI-powered tools into their teaching practices?
3. What are teachers' attitudes toward the adoption and long-term use of AI in classroom instruction?
4. How do teachers evaluate the impact of AI-powered tools on their instructional methods and student performance?

What recommendations can be formulated based on teachers' perceptions to enhance the effective implementation of AI-powered educational tools in the classroom?

Scope and Delimitations

This study aims to examine teachers' perspectives on the effectiveness, challenges, and impact of AI-powered educational tools in classroom instruction. It specifically focuses on the perceptions of teachers within the classroom setting, particularly those who have experience using or addressing AI-based tools in education. The study seeks to understand how teachers perceive the role of AI in enhancing student learning and engagement, the challenges they face in integrating these tools, their attitudes toward adopting AI for long-term use, and their evaluation of its impact on instructional methods and student performance. Data will be collected from a selected group of teachers in public secondary schools in Pio Duran West District to ensure that findings remain relevant to similar educational environments.

This study is limited to teachers' perspectives and does not include the views of students, parents, or school administrators. Additionally, it does not focus on the technical design or development of AI-powered educational tools but rather on teachers' subjective experiences, approaches, and challenges in using these tools. The study acknowledges certain boundaries, such as

variations in AI equipment across different schools and the evolving nature of AI technology, which may influence teachers' perceptions over time. Moreover, findings will be specific to public secondary schools in Pio Duran West District and may not be generalizable to other educational settings with different technological infrastructures or policies.

Gap Bridged by the Study

The reviewed studies highlighted AI's positive impact on teaching and learning, focusing on areas such as professional development, cognitive growth, language proficiency, and special education (Duan & Zhao, 2023; Guan Li et al., 2024; Okpal, Ejide, & Okonkwo, 2025; Mananay, 2024; Candilas, 2024). They emphasized AI's ability to enhance engagement, personalize instruction, and reduce teachers' workload while also acknowledging challenges like training and ethical concerns. Similar to the present study, these works underscored the need for proper AI integration and support mechanisms in education.

However, the present study uniquely focused on teachers' perceptions of AI-powered tools in classroom instruction, exploring their experiences, challenges, and recommendations. Unlike previous studies that examined AI's cognitive and linguistic impacts, this study provided deeper insights into how educators adapt to AI and integrate it into their teaching practices. It also employed focused group discussions, allowing for a richer understanding of teachers' perspectives. This approach ensured that AI implementation aligns with educators' needs and classroom realities.

Research Focus

This study focused on examining teachers' perceptions about the effectiveness, challenges, and most importantly, the impact of AI-integrated instruction in the classroom on their own teaching and learning. As artificial intelligence becomes increasingly integrated into education, how teachers perceive and utilize these tools is crucial in deciding whether they will be adopted and used. The study investigates the use of AI to improve student engagement and personalized learning and outlines major challenges in the form of technical limitations, ethical issues, and unequal access across institutions.

Moreover, it examined the concerns regarding AI's role in personalized learning, and how it affects student-teacher interaction. Additionally, the study highlights how teachers' preparedness, experiences, and technological proficiency influence the success of AI integration in educational settings. AI's involvement in personalized learning and its impact on student-teacher interaction are the root causes of global worry.

To address these concerns, a qualitative research design with a phenomenological methodology is used to enable the researcher to investigate and interpret the experiences of teachers who have engaged with AI technologies within their classrooms. By using this method, the study is able to capture subjective opinions, perceptions, and challenges faced by educators in integrating AI.

Appropriateness of Design

The research design employs a qualitative research design to explore teachers' perceptions of AI-powered educational tools in the classroom. A qualitative research strategy is appropriate for the study since it makes it possible to gain a rich understanding of teachers' experiences, beliefs, and attitudes concerning the integration of AI in education. With the dynamic nature of AI within education, this methodology guarantees an adaptive and context-specific inquiry into the matter.

In addition, qualitative research is in accordance with the objectives of the study in that it captures the richness of teachers' views, including the advantages, difficulties, and ethical issues of AI implementation. By using focus group discussions and thematic analysis, this research design allows for a thorough exploration of how AI affects teaching methods and student engagement. By highlighting subjective experiences and contextual considerations, the research adds to a better understanding of how AI-based tools can be meaningfully integrated into teaching in the classroom while responding to teachers' concerns and professional interests.

Population and Sampling Method

The population of this study consisted of twelve (12) teachers from public secondary schools in the Pio Duran West District with experience using or being exposed to AI-powered learning tools in their classrooms. These educational stakeholders are key in determining the direction of AI in education, thus their views are critical in assessing the efficacy, challenges, and extent of the impact of incorporating AI. By targeting this group, the research guarantees that findings are collected from people who directly engage with AI technologies in learning and teaching settings.

To select participants, the study uses purposive sampling, a non-probability sampling method that enables the deliberate selection of people on the basis of certain criteria. This approach guarantees that only educators with appropriate experiences and information regarding AI-powered tools are sampled, which increases the credibility and richness of the findings. The sampling process takes into account teaching experience, familiarity with AI tools, and willingness to provide information. Through purposive sampling, the research ensures that the data gathered is a true representation of the realities of AI

implementation in public secondary school classrooms.

Informed Consent

In this study, informed consent was obtained from all participants before their involvement in the research. Since the study explores teachers' perceptions of AI-powered educational tools in the classroom, it was essential to ensure that participants fully understood the purpose, scope, and potential implications of the study. A formal informed consent form was provided to all participating educators, outlining key details such as the study's objectives, the voluntary nature of participation, confidentiality measures, and the right to withdraw at any time without consequences. Given the emerging role of AI in education, the study also acknowledged concerns related to AI adoption, such as technical challenges, ethical considerations, and its impact on instructional practices.

Participants were given sufficient time to review the consent form and ask questions before signing it. Special attention was given to ensuring that teachers were aware of their rights, including the protection of their responses and the secure handling of any personal data. The study adhered to ethical research principles by guaranteeing anonymity, protecting participants' identities, and ensuring that all collected data was used solely for academic purposes. By securing informed consent, the research upheld ethical standards, ensuring that participants' rights, privacy, and professional perspectives were respected throughout the study.

Confidentiality

Confidentiality was a crucial aspect of this study, ensuring that the identities and responses of participating teachers remained protected. Since the study explored teachers' perceptions of AI-powered educational tools, it was essential to create a safe environment where participants could openly share their experiences, insights, and concerns without fear of judgment. Since AI integration in education entailed debate on challenges, ethical issues, and institutional practice, confidentiality assisted in eliciting candid and impartial feedback. By protecting participants' privacy, the research guaranteed that their views played a significant role in understanding the influence of AI in instructional practice while respecting ethical research practices.

To secure participants' identities and personal data, the researcher employed rigorous data security protocols. All data gathered was anonymized, erasing any identifying information like names, school associations, or particular places. Responses were given distinct codes rather than personal identifiers to ensure anonymity. Data encryption was also employed to safeguard electronic records, with only approved individuals having access to research files. All paper records, including signed consent forms, were

stored in a locked cabinet while computer data was saved on a password-locked device. After finishing the study, all the sensitive data were properly disposed of to avoid any unauthorized access. This action guaranteed that participants' privacy and confidentiality were protected throughout the research process.

Pilot Study

A pilot study was conducted prior to the major research to assess the feasibility, clearness, and consistency of the research tools. A small sample of teachers belonging to public secondary schools within the Pio Duran West District, but not included in the major study, was chosen for this initial trial. The pilot study was done to evaluate if the FGD questions were pertinent, understandable, and able to bring out meaningful answers. It also served to check if the data gathering process was streamlined and whether there was a need to make some modifications to fine-tune the methodology of the study.

Using the pilot study, possible problems such as confusing questions, duplicate items, or technical hitches in recording replies were located and corrected. Participant feedback was also utilized in sharpening question wordings and streamlining the entire FGD process. Additionally, the process's reliability for analyzing data was determined to assess that patterns and themes could indeed be gleaned well from discussions. Through the pilot study, the researcher validated the research instruments and guaranteed a seamless and efficient data collection process for the main study.

Instrumentality

The study utilized various research instruments to collect qualitative data on teachers' perceptions of AI-powered educational tools. These instruments were carefully designed to ensure that the study captured in-depth insights into issues such as data privacy, bias, and academic integrity.

A semi-structured questionnaire was created to act as a guide for discussion, ensuring that important issues like the effectiveness of AI, challenges in integration, and ethical issues were well covered while still providing room for flexibility in answers. This was done to ensure that subtle information that a strict questionnaire may not capture was obtained, making it appropriate for investigating intricate matters of AI adoption in education.

The research instruments were deliberately crafted and fine-tuned with the aid of a pilot study to ensure clearness, salience, and effectiveness in producing significant data. The questions were framed to stimulate open discussion and reflective thinking to enable educators to speak freely without inhibitions while maintaining consistency in data gathering. Moreover, audio recording and field notes were utilized to capture discussion faithfully, retaining participants' response depth for thematic analysis. These tools were found to be suitable since they fit the

qualitative orientation of the research, making it possible to gain a detailed insight into teachers' views of AI-driven educational resources.

Explication of the Data

The process of data explication in this study involved systematically analyzing and interpreting the qualitative data gathered from focus group discussions (FGDs). The raw data, primarily consisting of audio recordings and field notes, was initially transcribed for accuracy and completeness. After transcription, the data was subjected to initial organization, where answers were sorted according to similar themes and patterns regarding the research questions. This process allowed for an organized method of understanding teachers' perspectives on AI-powered educational tools, ensuring that major findings were logically categorized.

After data arrangement, thematic analysis was used in coding and exploration of recurrent notions, issues, and sentiments evinced by participants. Keywords, phrases, and patterns of codes corresponding with fundamental themes including AI efficiency, integration difficulties, ethical concerns, and future embracing were identified using the coding exercise. In the iterative process, themes were consolidated to develop an unambiguous as well as reasonable interpretation of data. This approach made sure that findings were not only descriptive but also gave greater insights into how AI-based tools affect teaching practices. Through the use of this strict approach, the study made sure that results were reliable, significant, and directly related to the research aims.

Validity

To ensure the validity of this study, careful measures were observed in verifying that research instruments accurately captured teachers' perceptions of AI-powered educational tools. The semi-structured questionnaire used in focus group discussions (FGDs) was developed based on a thorough review of literature and aligned with the study's objectives. There was a pilot study done before the primary research in order to validate the questions with regard to how clear, appropriate, and efficient they were at provoking substantial responses. It enabled necessary adjustments to be made after feedback was obtained from this pilot, with the instruments guaranteeing that they measured what was supposed to be measured. It assisted in raising the content validity of the research by ensuring the questions were comprehensive and relevant to the research topic.

Furthermore, triangulation was used to validate the credibility of the findings. Data obtained from FGDs was cross-checked using field notes and thematic analysis to ensure consistency in patterns and themes obtained. Participant validation was also practiced, where major findings were checked to ensure their accuracy and representation of teachers' perceptions. Through these measures, the study ensured construct and face validity,

keeping the findings both credible and relevant to the context of the study.

Reliability

The reliability of this study was ensured by maintaining consistency and dependability in the research instruments and data collection methods. The semi-structured questionnaire applied during focus group discussions (FGDs) was carefully crafted with concise, well-defined questions to ensure consistency in data collection from various participants. In addition to that, a pilot study was undertaken to gauge the efficacy of the questions and discussion format. This trial was useful in pinning down and resolving any vagueness or inconsistencies so that the research instruments would provide repeatable and consistent results.

Further, standardized protocol was used at the time of data collection, transcription, and analysis to avoid variability. Thematic analysis procedure was used consistently for all discussions transcribed in order to ascertain recurring patterns and themes, eliminating subjective bias while interpreting. In addition, inter-coder reliability was also maintained by having a second researcher check a subset of the coded data to ensure consistency in the identification of themes. Through these precautions, the study ensured that the results were reliable, replicable, and generalizable across similar educational settings.

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Findings

Based on the results of the study, the following key findings were identified and formulated:

1. Teachers generally perceive AI-powered educational tools as effective in enhancing student learning and engagement, noting improved individualized instruction, increased student motivation, and more efficient classroom management.
2. Teachers face several challenges in integrating AI-powered tools into their teaching practices, including limited technical knowledge, inadequate training, lack of institutional support, and concerns about data privacy and ethical use.
3. Teachers generally hold a cautiously optimistic attitude toward the adoption and long-term use of AI in classroom instruction, recognizing its potential benefits while expressing concerns about over-reliance on technology and the need for proper guidance and training.
4. Teachers evaluate the impact of AI-powered tools on their instructional methods and student performance as generally positive, citing enhanced lesson delivery, improved student assessment, and personalized learning support, while also noting the need for balanced integration to maintain pedagogical effectiveness.
5. Teachers recommend providing continuous professional development, ensuring institutional support, addressing ethical concerns, and selecting user-friendly AI tools to enhance the effective implementation of AI-powered educational tools in the classroom.

Conclusion

Based on the findings of this study the following conclusions were formulated:

1. Teachers view AI-powered educational tools as effective in fostering student learning and engagement, primarily due to their ability to support personalized instruction, boost motivation, and streamline classroom management.
2. The integration of AI-powered tools into teaching practices is hindered by challenges such as insufficient technical knowledge, limited training opportunities, lack of institutional support, and concerns about data privacy and ethical implications.
3. Teachers maintain a cautiously optimistic attitude toward the long-term use of AI in classroom instruction, acknowledging its potential advantages while emphasizing the importance of appropriate training and avoiding excessive dependence on technology.
4. Teachers view the impact of AI-powered tools on instructional methods and student performance as generally positive, highlighting improved lesson delivery and personalized support, while underscoring the need for balanced integration to preserve effective pedagogy.
5. The effective implementation of AI-powered educational tools in the

classroom hinges on addressing teachers' key concerns by providing sustained training, strong institutional support, and ethical safeguards, alongside the adoption of intuitive and pedagogically aligned technologies.

Recommendations

Based on the conclusions drawn from this study, the following recommendations were formulated:

1. Schools may invest in AI-powered tools that support personalized instruction and enhance student engagement, while ensuring teachers receive adequate training to effectively implement them in the classroom.
2. Institutions may address the challenges of AI integration by offering comprehensive technical training, ensuring institutional support, and developing clear policies on data privacy and ethics.
3. May provide teachers with continuous professional development and resources to help them embrace the benefits of AI, while preventing over-reliance on technology through balanced usage.
4. Schools may continue to encourage the use of AI-powered tools for improved lesson delivery and student performance, ensuring that their integration is balanced with effective pedagogical practices.
5. That schools and educational institutions may invest in ongoing professional development, establish clear ethical guidelines, ensure strong technical and administrative support, and carefully select user-friendly AI tools that align with instructional goals to promote effective integration in classroom teaching.
6. Educational institutions may foster a collaborative environment where teachers can share best practices, experiences, and insights on integrating AI-powered tools, promoting continuous improvement and innovation in AI-driven teaching methods.
7. Schools may establish a framework for evaluating the effectiveness of AI-powered tools regularly, ensuring that they meet educational goals, address teachers' concerns, and adapt to evolving classroom needs.

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