

Practices of Instructors in Integrating Artificial Intelligence (AI) in Assessing Student Performance among the Community Colleges in Albay

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ABSTRACT

Despite the promising benefits of AI in enhancing educational outcomes, its adoption faces significant barriers, including inadequate technological infrastructure, resistance from educators, and concerns regarding data privacy and ethics. This research aims to examine how instructors at community colleges in Albay, Philippines, are integrating AI into assessment practices, the challenges they encounter, and the broader implications for teaching and learning. This study uses descriptive quantitative research to explore the distinct challenges faced by community colleges, including limited resources and diverse student needs, while highlighting the potential for transforming educational practices. It also contributes to ongoing discussions on the future of education and the role of technology in fostering more inclusive, dynamic, and effective learning environments. The primary data sources for this study were school administrators from Higher Education Institutions in the first, second, and third congressional districts of Albay province. Additionally, full-time and part-time instructors, as well as students from Community Colleges in these districts, were also key data sources. The proposed AI Framework for assessing student performance focuses on three key areas: AI Supervision to ensure fairness and accountability, Operational Elements to ensure secure integration, and Instructional Dimensions aimed at improving teaching by personalizing content and refining strategies based on student data.

Keywords: practices of instructors, integrating artificial intelligence (AI), assessing student performance, community colleges, AI in education, student assessment, AI integration

INTRODUCTION

Education is a cornerstone of societal progress, shaping personal development and driving advancements in economic growth, social well-being, and technology (Johnson, 2020). By fostering critical thinking, creativity, and innovation, education empowers individuals to navigate an increasingly complex world. In this context, the integration of Artificial Intelligence (AI) into educational systems offers significant promise. AI presents opportunities to enhance student performance, personalize learning experiences, and improve overall teaching quality, particularly for instructors in Albay, Philippines.

However, despite the potential benefits, the adoption of AI in education comes with challenges that must be addressed. These include resistance from educators who are accustomed to traditional methods, as well as limitations in technological infrastructure, such as unreliable internet access, inadequate hardware, and incompatible software. Furthermore, concerns about data privacy and ethical implications complicate the integration process. Many educators also lack the necessary training and professional development to effectively utilize AI tools in their teaching.

This study focuses on the role of AI in student assessments at community colleges in Albay, aiming to explore strategies for overcoming these barriers. By examining how AI can be better integrated, the study

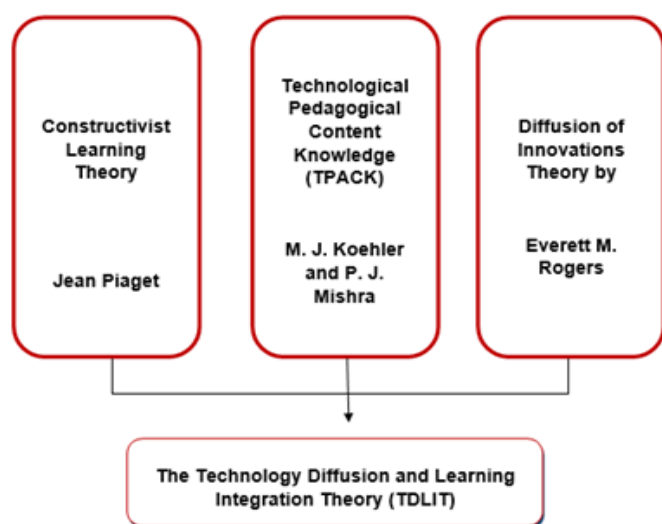
seeks to unlock its full potential to improve educational outcomes. The Department of Education's (DepEd) establishment of the Education Center for AI Research (E-CAIR) signals a national commitment to enhancing teaching, learning, and administrative processes through AI (Department of Education, 2025). By empowering educators with the right technological and pedagogical knowledge, AI can be leveraged to create personalized, engaging learning experiences that foster academic success. Ultimately, the findings from this research aim to contribute to more effective AI integration and improve learning outcomes across the region.

Framework

This study is based on three interconnected theoretical frameworks: Constructivist Learning Theory, Technological Pedagogical Content Knowledge (TPACK), and Diffusion of Innovations Theory, which collectively explore the relationship between technology, teaching practices, and learning outcomes. These frameworks provide a thorough understanding of how AI can enhance educational practices. Piaget's Constructivist Learning Theory highlights the active role students play in constructing their own knowledge by engaging with their environment. Learning occurs as students interact with the world around them, using experiences to build cognitive structures. AI supports this theory by offering personalized and adaptive learning experiences that cater to individual needs, promoting deeper student engagement. Through personalized learning, AI allows students to progress at their own pace, ultimately improving their academic performance (Smith et al., 2022). This approach aligns with Piaget's view that learning is an active, ongoing process, where students are at the center of their educational journey. The Technological Pedagogical Content Knowledge (TPACK) framework, developed by M. J. Koehler and P. J. Mishra, emphasizes the importance of integrating technology into education through a combination of technological, pedagogical, and content knowledge.

For educators to successfully implement AI, they must understand not only how the technology works but also how to effectively incorporate it into their teaching strategies and specific content areas. TPACK highlights that educators need to possess a balanced understanding of technology and pedagogy to use AI tools in a way that supports learning. This complements Piaget's theory by ensuring that AI is used to foster meaningful, personalized learning experiences that are tailored to each student's needs (Cox & Graham, 2022; Zhao et al., 2020). Everett M. Rogers' Diffusion of Innovations Theory explains how new technologies, such as AI, spread within educational institutions. Rogers identifies several key factors that influence the adoption of innovations, including the perceived benefits, challenges, and support from the institution. Teachers' willingness to integrate AI into their classrooms is shaped by these factors. The theory also discusses the role of communication channels and social processes in facilitating the adoption of innovations, such as peer influence and institutional support for technological initiatives. Additionally, Rogers argues that the perceived advantages of AI, such as increased efficiency and personalized learning, play a key role in its adoption by educators. The more benefits educators see in AI, the more likely they are to incorporate it into their teaching practices (Rogers, 2020).

By combining these three frameworks, the study provides a comprehensive understanding of how AI can transform educational practices. The researchers theory The Technology Diffusion and Learning Integration Theory (TDLIT) brings together Constructivist Learning Theory, TPACK, and Diffusion of Innovations Theory into a unified framework for understanding the integration and diffusion of AI in education. Piaget's theory underscores the need for student engagement, TPACK offers guidance on how to incorporate AI tools into teaching, and Diffusion of Innovations Theory provides insights into how AI spreads across educational systems. Together, these theories offer a comprehensive roadmap for integrating AI into education and maximizing its impact on teaching and learning. This integrated approach gives a deeper understanding of the challenges and opportunities of AI adoption in education. By focusing on how technology, especially innovations like AI, can be effectively used to enhance learning, the study aims to provide valuable insights for educators and policymakers looking to improve educational practices and student outcomes.



Researchers Theory
(Aura Keena G. Tabuena, 2025)

Figure 1. Theoretical Paradigm

Objectives of the Study

This study examines how educators incorporate AI into assessments, the difficulties they face, and its effects on student performance and engagement. Additionally, the study aims to: (1) Determine the level of awareness of full-time instructors, part-time instructors and students on the use of AI on application tools, (2) Identify the practices of full-time instructors, part-time instructors and students in the use of AI in assessing performance, (3) Explore the perceptions of the respondents along: (a) Benefits, (b) Challenges, (c) Ethical Considerations, (4) Propose AI Framework in assessing student performance.

METHODOLOGY

Research Design

This study will employ a quantitative research approach. The descriptive quantitative method will collect measurable data from participants, allowing the researcher to present clear, detailed insights into the study and its variables (Li et al., 2022). Descriptive statistics will be used to summarize and interpret the data, offering a better understanding of AI's role in education and its impact on student assessment (Dede et al., 2023).

Research Site

The study was conducted in the province of Albay, located in the Bicol Region (Region V) of the Philippines. Albay is recognized for its dynamic educational environment, housing several Higher Education Institutions (HEIs) that offer a wide range of academic programs, contributing significantly to the province's intellectual and professional development. The study focused on the Province of Albay, which is divided into three (3) congressional districts. It involved four (4) community colleges within the province. The primary data sources for this research were full-time and part-time instructors, as well as students from these Higher Education Institutions (HEIs).

Instrumentation

The research instrument was a self-made survey questionnaire, validated by a statistician, created to align with the study's objectives and administered to full-time and part-time instructors from various Higher Education Institutions (HEIs) in the Province of Albay. The questionnaire is divided into three (3) sections.

The questionnaire employed a 4-point Likert scale, where participants indicated their level of agreement or disagreement. is used to measure respondents' familiarity and perspectives, providing valuable insights into their understanding of AI and its implications.

Data Collection

The researcher obtained a list of higher education institutions (HEIs) in Albay from the Commission on Higher Education (CHED) by requesting a hard copy in person and receiving a soft copy via email. Communication letters were then distributed to the identified HEIs for data collection, with a request for signatures on a receipt copy. Both the letters and survey instruments were delivered in person. The survey questionnaires were distributed two weeks after the school dean approved the communication letter. Upon completion of data collection, photos of the school and respondents were taken. The researcher employed the weighted mean formula to analyze the survey results, allowing for a more nuanced interpretation of the data.

RESULTS AND DISCUSSION

Education plays a crucial role in promoting growth and skill development, with community colleges being vital for inclusiveness and workforce readiness. However, these institutions face significant challenges, including limited resources and unequal access to technology. The integration of Artificial Intelligence (AI) in Albay, Philippines, presents an opportunity to enhance assessments and personalize learning. Yet, the adoption of AI faces barriers such as resistance from educators, infrastructure gaps, concerns about data privacy, and insufficient training. This study explores the role of AI in student assessments at Albay's community colleges, aiming to overcome these challenges and unlock the educational benefits AI can offer.

A key factor in successful AI integration is the awareness and familiarity of both instructors and students with AI tools. The study shows that full-time instructors are generally aware of AI tools, with strong ratings for their ability to identify AI uses in platforms, understand its impact on teaching, and evaluate AI-generated content. However, there is lower awareness regarding AI tools for collaboration, such as brainstorming and project management systems, indicating a need for further training. Students, on the other hand, demonstrated slightly higher awareness, particularly in understanding AI's functionalities and its role in shaping the future workforce. However, their awareness of AI's role in academic challenges and platforms was lower. Overall, targeted training, especially in collaboration tools, could help enhance AI knowledge across all groups (Holmes et al., 2019).

In terms of AI's application in assessment, the results show that AI is generally viewed as an effective tool for assessment by both full-time and part-time instructors, as well as students in Albay's community colleges. Areas such as adapting assessments to student needs, checking originality, and ensuring consistency in evaluations were highly rated by full-time instructors. However, there were concerns in areas such as ensuring AI systems are free from bias and tracking student progress, which received lower ratings, suggesting room for optimization. Part-time instructors, while sharing similar views, particularly rated the bias-free indicator low, signaling a need for further training. Students were more optimistic, especially about being informed about AI's role in their assessments (Göçen & Aydemir, 2020; Walter, 2024).

AI is generally perceived positively by both instructors and students for its potential to enhance teaching and learning. However, confidence in its use varies significantly across different groups. Full-time instructors, who have greater access to institutional resources, tend to feel more prepared and optimistic about implementing AI in their teaching. In contrast, part-time instructors express more hesitation, particularly concerning fairness in assessment and the ethical implications of AI implementation. Despite these differences, a shared concern across all groups is the reliance on large-scale data collection to power AI systems. This reliance creates a tension between the benefits of personalized learning and the risks associated with surveillance. These findings underscore that the challenges of AI implementation go beyond technical training alone. There is a pressing need for clear, enforceable ethical guidelines that prioritize equity, accountability, and privacy. For instance, students are often unaware of what data is collected, how it is used,

or with whom it is shared, raising concerns around informed consent. This lack of transparency can undermine trust in AI tools and their usage. Similarly, part-time instructors may lack the resources or training to critically evaluate whether the tools they are expected to use meet ethical standards.

To address these issues, it is essential to provide part-time instructors with equitable access to professional development. This should not only focus on the use of AI tools but also on the critical evaluation of their limitations and potential ethical risks. Additionally, the use of AI in monitoring student behavior such as through plagiarism detection or proctoring software raises further concerns about trust and autonomy. These concerns are especially pronounced when AI tools are implemented without clear policies or opt-in mechanisms. As such, it is essential that students be involved in discussions about AI, not merely as data subjects but as active stakeholders whose experiences and voices should inform AI implementation in educational settings.

The imbalance of knowledge and control between institutions, instructors, students, and technology providers highlights the need for clear, enforceable ethical guidelines. To address this, institutions must provide equitable access to AI training for both full-time and part-time instructors. This training should cover key ethical considerations such as fairness, bias, privacy, and the risks associated with surveillance. Moreover, institutions should adopt transparency policies regarding data collection, usage, and access. These policies must ensure informed consent from students before any data is collected and offer an option to opt in or out of data-sharing arrangements.

In support of these efforts, the proposed AI Framework for student performance assessment outlines three key components: AI Supervision, Operational Elements, and Instructional Dimensions. AI Supervision ensures responsible, fair, and transparent AI usage, with a focus on bias prevention, data privacy, and legal compliance. Operational Elements address the technical infrastructure required for secure data management and system compatibility. Lastly, Instructional Dimensions focus on enhancing teaching through personalized content, real-time feedback, and inclusive learning practices. Together, these components form a comprehensive approach to the ethical and effective integration of AI in education. By adopting such a framework, community colleges can better navigate the challenges of AI implementation, ensuring that the technology enhances the learning experience for all students while safeguarding ethical standards.

CONCLUSION

Based on the findings and interviews of this study, the following conclusions have been drawn. (1) The high level of awareness among respondents indicates that both instructors and students are already somewhat familiar with AI tools. To capitalize on this knowledge and further prepare them for the increasing role of AI in education, it is crucial to launch an AI Awareness Campaign in schools. This campaign should adopt a comprehensive approach, integrating AI into the curriculum, enhancing AI literacy, and offering teacher training and skill development. Providing professional growth opportunities, fostering innovation, and supporting research initiatives will help educators stay abreast of advancements in AI. For students, dedicated AI Literacy Programs can educate them on how AI impacts their academic work and how to use AI ethically. Interactive demonstrations of AI tools will give both teachers and students practical, hands-on experiences, helping them better understand the functionality and potential of these tools.

(2) To enhance the use of AI in assessments, institutions should provide targeted training, particularly focusing on bias detection for part-time instructors. Regular audits of AI tools will ensure their fairness and accuracy. While AI can streamline grading, maintaining human oversight is essential for balancing efficiency with judgment. It is also vital to communicate clearly with students about the role of AI in assessments to promote transparency. Training for instructors should focus on AI-powered collaboration tools, such as those for project management and brainstorming, while students need guidance on AI tools for academic tasks like writing assistance and citation generation. Ethical use of AI should be a cornerstone of these training programs. Moreover, institutions must establish clear ethical guidelines covering bias, data usage, and appeals to foster accountability and trust.

(3) To address broader concerns about AI in education, institutions can implement several actions. A mandatory AI literacy and ethics training program should be developed for all instructors, with a special focus on part-time faculty. This program would cover both technical skills and ethical considerations, such as fairness, bias, and privacy, and should be regularly updated to keep pace with emerging tools and best practices. Data privacy and transparency workshops for both students and faculty are also necessary to clarify how AI tools collect, store, and use data, ensuring informed consent and enabling students to opt in or out of data-sharing arrangements. Furthermore, institutions must develop comprehensive policies for AI use in assessments and monitoring, which include safeguards against bias and an appeals process for students.

To support these initiatives, an AI Ethics Task Force should be established, consisting of administrators, faculty, students, and privacy experts, to oversee the ethical implications of AI usage and ensure compliance with ethical standards. Additionally, institutions can create student advisory boards or conduct surveys to gather student feedback on AI adoption and monitoring. Peer learning communities could be set up to enable instructors to share best practices, troubleshoot challenges, and address concerns, such as bias, collectively. Finally, an ongoing evaluation and auditing program for AI tools should be implemented to assess their fairness, accuracy, and transparency in both assessments and learning environments. These initiatives will ensure that AI is used ethically, effectively, and transparently in education.

TRANSLATIONAL RESEARCH

This research aims to apply study findings to improve AI integration in student assessments at Albay's community colleges. It includes training for instructors, development of best practices, and recommendations for customized AI tools. The research is significant to CHED as it provides evidence-based strategies, supporting policy development and enhancing assessment practices across colleges and foster a more informed, tech-savvy educational environment.

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