The Utilization of Artificial Intelligence in Shaping College Instruction

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Abstract

The academic sector has transformed due to the integration of Artificial Intelligence (AI) in higher education, thus bringing opportunities and challenges. This study aims to determine and investigate the level of awareness among college instructors at the University of the Cordilleras regarding the utilization of AI in their teaching practices, particularly in a trimester-program, and a blended learning environment. Using a quantitative research design, 155 faculty members participated in a researcher-made assessment across four core domains: personalized learning, writing assistance, student engagement, and administrative automation. Findings reveal a moderate awareness in the areas of personalized learning and writing support, and awareness in leveraging AI for student engagement and administrative tasks. Limited training, time constraints, and technological unfamiliarity are a few of the gaps that exist aside from AI's potential. These insights imply the necessity of institutional support and targeted professional development to bridge awareness and implementation. The study is significant to understand how AI can reshape instructional practices and highlights the urgent need for systematic strategies to prepare educators for AI-driven academic environments.

Keywords: Artificial Intelligence (AI), teacher awareness, personalized instruction, educational technology, higher education, blended learning, administrative automation

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Introduction

The advancement of incorporating Artificial Intelligence (AI) in some work tasks has completely changed the way we learn. AI has become a crucial part of today's teaching and learning practices. Due to the continuous advancement of technology, academic institutions continually find ways to upgrade various sectors that help sustain their provision of educational services to stakeholders. This includes the integration of AI to stay at par with the demands of the world.

Globally, the integration of AI in higher education is manifested in various forms. For example, using AI to assist in personalizing the learning of students. AI usually offers suggestions on how teachers can support their learners according to their preferences and needs. Designing the academic content that fits students' preferences plays a vital role in developing essential 21st-century skills. In addition to academic knowledge, personalized learning focuses on developing essential 21st-century skills. Collaboration, critical thinking, problem-solving, creativity, and communication are nurtured through collaborative projects, problem-based learning, and real-world applications. A classroom that applies personalized learning encourages exploration and inquiry that prepares students with the potential to adapt to their thriving society (Shloul et al., 2024).

Another indication of the potential of AI is its function as a writing assistant, especially for the administrative tasks of teachers and their additional job as researchers. According to Khalifa and Albadawy's (2024) study, AI tools such as ChatGPT, Google's Gemini AI, Microsoft's Bing provide substantial help in crafting and organizing academic content. Thus, instructors are guided by these AI tools to innovate their teaching methods because of the suggested teaching-learning preferences. In addition, AI is also increasingly utilized for engaging students through gamified learning, real-time feedback mechanisms, and predictive analytics that identify at-risk students for proactive intervention. The increasing digitization of the world has nudged the academe to emphasize engaging and motivating students even in an online distance learning modality. Simultaneously, AI assists teachers with their administrative tasks, like assisting with grading and assessments, automating processes like admissions and student record management, scheduling, and even using chatbots to answer students' queries (Rahiman & Kodikal, 2024). In that way, using specific AI tools helps faculty and staff save time, which allows them to have more time facilitating and guiding their students.

To guarantee that AI is properly managed in the academic sectors, the Philippines' trifocal education system --Department of Education (DepEd), the Commission on Higher Education (CHED) and Technical Education and Skills Development Authority (TESDA) have initiated policies, projects, and studies that focus on the integration of AI in the academic sector. These efforts target how AI can guide both students and educators in completing their duties effectively. For instance, DepEd is working on establishing an Education Center for AI Research (E-CAIR) to develop AI-driven tools for teaching, learning, and school administration, including applications for enhancing learning resources and improving student assessments (Department of Education, 2025). In addition, CHED highlighted its goal to weave AI into the learning process for all students and teachers, not just those in tech programs. It has also stressed that faculty members need to grasp AI's impact on their specific subjects and incorporate it into their teaching, even for humanities and social sciences (Hernando-Malipot, 2025). TESDA has started establishing the role of AI as a transformative or influential factor in the labor market. TESDA has presented several plans to incorporate AI into Technical and Vocational Education and Training (TVET) courses. These plans aim to prepare the Philippine

workforce for the challenges of the Fourth Industrial Revolution and to enhance the alignment of TVET programs with the developing industry needs (TESDA, 2021). These efforts reflect a strategic approach to AI integration that promotes the innovation of the use of AI within the Philippine education system.

Despite the escalation of interest and initiatives of several academic sectors, research gaps still exist on the integration of AI use in shaping college instruction. Many teachers from different levels acknowledge the power of AI, but implementing its potential is still limited. Despite the continuous trend of artificial intelligence in various sectors, especially in the academic sectors, many teachers still lack the skills and knowledge of integrating AI into their teaching practices, such as personalizing students' learning, writing and research, administrative processes and engaging students. As a result, more research is suggested to explore further the teachers' awareness, influencing factors, and their own initiatives in the utilization of AI in teaching. Accordingly, this study seeks to assess the level of awareness among college instructors regarding the application of artificial intelligence in their instructional practices.

Relevant innuendos that are drawn from this study are essential for the institution's stakeholders. Firstly, understanding the level of awareness among college instructors can help support the design of professional development and training programs that strengthen the pedagogical system of the university, especially in a fast-paced system with a blended learning environment. The findings may also improve the institutional policies and guidelines that will establish an ethical and responsible use of AI while keeping a quality and academic integrity. Furthermore, the study can lead to the design of more user-friendly technological tools that embed AI use. Lastly, this research may enhance the superiority and efficiency of college instruction not only in the Philippines but also in the rest of the world to guarantee that teachers are not left behind in this AI-driven educational environment.

Research Methodology

In this study, a quantitative research method is used to assess the awareness of college teachers on the adoption of AI into their teaching practices. The locale of the study is the University of the Cordilleras (UC), a private institution in Baguio City, Philippines. Purposive sampling was used to select 155 faculty members from the university. UC follows a trimester academic calendar and implements a blended learning modality, combining traditional face-to-face instruction with online learning platforms.

A researcher made multiple-choice test was given to the participants to measure their awareness along four dimensions: the use of AI for personalizing learning, writing assistance in research and instructional content design, engaging students, and automating administrative tasks. The test consists of 16 items aligned to identify the level of awareness of teachers along the study's core dimensions. The test was validated by a group of experts in education and technology. A reliability test was conducted with the teachers at the College of Information Technology and Computer Sciences, based on the reason that they possess a higher level of familiarity with the use of AI tools. Responses were analyzed using descriptive statistics, specifically, the mean and skewness were used to determine the level of awareness. Skewness was included for further analysis of the data distribution and normality of the data.

Results and Discussion

The findings presented in Table 1 show varying levels of awareness among college teachers at the University of the Cordilleras vis-à-vis the use of Artificial Intelligence in their teaching practices. The general weighted mean is 2.32, interpreted as moderately aware. This means that their understanding of implementing AI in the study's core dimensions is developing. This then suggests that faculty are still in the initial stages of using AI tools. This idea corresponds to the study of Deacon et al. (2024), indicating a reluctance to embrace new technologies entirely due to the perception that AI is seen as both a threat and an opportunity. The participants in their study have provided concerns ranging from academic integrity issues to the broader implications for learning and future employment. Other concerns were indicated in the study of Sibug et al. (2024), stating that teachers generally hold positive attitudes towards AI's potential, their issues mainly revolve around the difficulties on practical implementation, like the need for technical support, maintaining human connection, safeguarding data privacy, and addressing the learning curve for both educators and stakeholders.

Table 1
Level of Awareness of the College Teachers in the Utilization of AI in Their Teaching Practices

Domain	Mean	Awareness Level	Skewness	Interpretation
Personalized Learning	1.97	Moderately Aware	0.10	Positively Skewed
Writing Assistance	1.94	Moderately Aware	0.20	Positively Skewed
Administrative Tasks	2.55	Aware	-0.23	Negatively Skewed
Engagement of Students	2.65	Aware	-0.20	Negatively Skewed
General Weighted Mean	2.27	Moderately Aware		

Personalized Learning

The result of this study presents a mean score of 1.97 and a positive skewness of 0.10 in the Personalized Learning domain. This suggests that some college teachers of this institution have limited knowledge of the use of AI as a potential tool for individualized instruction. Possibly, teachers are capable of using only the basics of AI, but not yet the sophisticated features of AI. Thus, this level highlights the need for more faculty training and programs that will focus on providing familiarity with AI tools that are intended to be used for personalized learning of their students.

According to the participants of this study, they are aware of the magnitude of AI; however, they lack the understanding of the general characteristics of AI and how to apply it in their teaching practices, as they are used to their traditional ways of customizing the learning strategies of their students. Another factor that hinders teachers from personalizing the learning of their students through AI is the limited time to adjust to the fast-paced innovation of technology, especially to the advent of AI in education. This can also be in connection with the workload of the faculty, especially that the participants of this study must manage and juggle their numerous tasks in the hasty system of a trimester program. To add to the challenge is the number of students each faculty must deal with, since evaluation of the needs and learning styles of students can be overwhelming because every trimester brings in a new batch of students. Hence, frequently recalibrating lessons and activities every semester is time-consuming.

The result also indicates a significant gap between the potential of technology and its application to the teaching-learning process. It has been discovered that teachers have limited awareness of using AI across these critical dimensions of personalized learning: analyzing the learner's data, adapting to individual needs, and developing instructional support. Participants of this study have stated that AI tools require technical knowledge, especially in providing prompts to generative AI such as ChatGPT and NotebookLM, making it difficult for them to use AI effectively. The tendency is that most instructors are still reliant on traditional methods rather than data-driven personalization.

Another issue that teachers find as a factor in adapting AI to their teaching practices is the cultural diversity of their classrooms. Subsequently, teachers' insights into personalized learning strategies are complex and time-intensive; hence, most teachers usually apply a one-size-fits-all approach. Although personalization involves adjusting instruction, resources, feedback, and interventions to learners' specific needs and goals (Idowu, 2024), limited training in AI integration discourages faculty from implementing such practices. Overall, the teachers' moderate awareness level of the use of AI for personalized learning is determined due to the limited time of teachers, workload pressures, the complexity of the blended learning environment, and an insufficient training program for teachers.

These reasons align with the Technology Acceptance Model (Davis, 1989), which suggests that while most college instructors recognize the essentials of most AI tools, their limited knowledge and demanding workload cause them to fully embrace the use of AI in their teaching practices. Furthermore, the concerns raised by the instructors on time constraints and the drastic changes in the educational landscape of the working environment of the instructors are recognized in the Concerns-Based Adoption Model (Hall & Hord, 1987). This concept deals with the contextual barriers to the implementation of educational innovations.

This finding corroborates the study of Balahadia et al. (2023), stating that there is a moderate level of awareness of ChatGPT, the most commonly used AI tool, among university teachers at selected schools in the Philippines. This indicates that while some knowledge of ChatGPT exists, there is still room for improvement in understanding its full capabilities. Another study from Sibug et al. (2024) has presented that the teachers at selected universities in Pampanga believe that AI tools can tailor learning experiences to individual students' needs. They have emphasized in their study that teachers gave high scores to the personalization capabilities of AI, but are balanced by reservations, such as concerns about technical issues on software and hardware compatibility problems, and privacy and data security might also result in a cautious approach to fully leveraging AI's personalization potential.

In conclusion, the results highlight a gap between college teachers' recognition of AI's potential and their actual application of some AI tools in personalizing their students' learning. Even though moderate awareness exists, the positive skew in data reveals that most teachers remain at the lower end of the awareness scale. This means that limited understanding of some AI tools, time constraints, and institutional workload pressures are contributing factors to the positive skewness. Bridging the gap is important to fully harness AI's potential in teaching practices among university instructors, specifically improving the strategies to personalize learning.

Writing Assistance

Awareness of AI as a writing assistant is also moderate, with a 1.94 mean, and it is positively skewed at 0.20, suggesting that educators are beginning to view the value of AI as a writing assistant, but the adoption of AI remains limited. This level is also a positive indicator that the college instructors are engaging in the use of technology to assist in their writing tasks, such as updating and creating their content materials for instruction, and for tasks aligned to research writing. However, the result also indicates that the teachers are not fully confident or do not have enough knowledge in using them for more complex tasks like literature review summarization or research design support.

According to some of the faculty, the university has offered programs for teachers and students on the use of AI, but these offers are not enough to establish a more efficient use of AI. Some teachers have also expressed their awareness of the use of tools like ChatGPT, Grammarly, or citation generators, but due to constant updates to the curricula, constant revisions to assessment materials, and the volume of administrative tasks, hindered their ability to stay updated. As a result, learning to use the other features of AI often becomes a low priority.

This finding implies that strategic faculty development in the integration of AI into the writing tasks of teachers, particularly in writing instructional materials and assessments, research designs, and academic writing, is a critical need to support teachers. Drawing on the Technological Pedagogical Content Knowledge (TPACK) framework (Schmidt et al., 2009), cultivating the technological proficiency of teachers is more significant and meaningful if it synergizes with their teaching practices. Teachers with a moderate level of awareness, as identified in the study, represent a promising cohort for transformation. According to Rogers' Diffusion of Innovations Theory (2003), these faculty members belong to the early majority group. This means they are typically deliberate in adopting innovations because they rely mostly on social validation, that is, they expect support from their institution. In addition, evidence of effectiveness must be presented to the faculty to ensure a full integration of the innovation AI can offer them.

Considerable studies have reflected similar outcomes; the data gathered by Kim & Kim (2022) stated that the teachers present a positive attitude toward incorporating AI as a writing assistant, specifically through an AI-enhanced scaffolding system (AISS). However, the teachers are concerned about their future roles as AI may take over their role as a supervisor of the teaching-learning process, and that teachers will just serve as class assistants. Thus, this negative view leads some teachers to be hesitant in integrating AI into their instruction.

Furthermore, embedding AI literacy across faculty development programs is especially pertinent in a trimester-based academic system with a blended learning institution where educators must constantly revise syllabi, adapt to new content, and deliver instruction with efficiency and precision. This insight is supported by the study of Palaoag et al. (2020), stating that the rapid nature of technological innovations and inventions means that educational institutions must always assess the provision of required technological support in meeting their teachers' and students' requirements. Educational institutions are liable to have a clear picture of their teachers and students' technological literacy, competency, and proficiency level to mount a dependable a successful blended learning, especially at the advent of AI in the academic sectors.

Administrative Tasks

AI is also a useful tool in helping with the everyday administrative work of teachers, such as streamlining tasks in grading, exam creation, attendance monitoring, and performance reporting. In contrast to the previous domains- personalized learning and writing assistant- the administrative tasks project an "Aware" level with a mean score of 2.55. This means that there is a significant number of teachers who are using and recognizing the role of AI in terms of routine administrative duties of teachers, such as grading, exam creation, attendance monitoring, and performance reporting.

The accumulated responses of this domain show a -0.23 negative skewness, suggesting that their answers are clustered toward the higher end of the awareness scale. This implies that most of the teachers accept AI positively, since they find it more familiar and relevant compared to the other instructional areas. The teachers perceive the use of AI as a solution to reduce the workload of the faculty, which allows them to have more time to engage with students and complete other teaching tasks required of them.

The immediate and concrete benefits of AI in this domain have contributed to the "Aware" level. Most teachers claim that using AI in their administrative tasks is less disruptive and aligns better with their usual duties. Thus, teachers are motivated to embrace AI as an auxiliary tool in assisting them in their administrative tasks. However, there is a need for institutional support and faculty development in terms of the use of AI in teaching amongst teachers who are only moderately aware and not aware of the implementation of AI on the administrative tasks of teachers. Strengthening their awareness, knowledge and skills of the potential of AI through training and hands-on exposure along with a clear institutional guideline is beneficial to elevate teachers' confidence of using AI in various teaching practices.

Supporting evidence aligns with the result of this study; for instance, the research of Goli-Cruz (2024) indicates that ChatGPT can simplify the repetitive tasks that educators perform. The researcher stated that while faculty members were aware of ChatGPT's existence, they did not entirely rely on the technology for delivering high-quality education (Goli-Cruz, 2024). Kayali and Balat (2024) confide in their study that teachers use AI applications to facilitate the rapid and easy completion of assessment and evaluation activities, which traditionally demand significant teacher time and effort. Moreover, teachers from the study of Oktavianus et al. (2023) showed a positive attitude towards AI as it offers in-depth feedback to students. The participants of their study perceives that AI is an essential tool in providing feedback that can be effective in guiding students to have better learning outcomes. Integrating AI to assist and automate teacher's administrative tasks allows teachers to have more time on human-centric aspects of teaching such as mentorship and facilitating individualized learning (Oktavianus et al., 2023).

Despite these supporting corroborations, some studies have an opposite view of the findings of this study. In Ecuador, teachers in higher education institutions are still in an "incipient manner" of implementing AI in their educational processes due to the findings that teachers still "lack the knowledge on the use of AI" (Taipicaña et al., 2024). Furthermore, the study Taipicaña et al. (2024) stated that most teachers do not fully embrace that using AI in the education field is a good practice, indicating a general skepticism or lack of faith in the benefits AI can offer to teachers and students. Furthermore, faculty members from 18 universities in the Russian Federation generally lack a systematic understanding of the organizational, teaching, and learning potential of AI tools. Many educators possess only segmental

knowledge, primarily related to their direct professional activities in teaching specific disciplines. The moderate awareness hinders them from forming a complete picture of AI's potential in education (Sysoyev, 2023).

Teachers are pragmatically accepting AI, for the reason that it supports teachers by reducing their repetitive tasks, such as writing students' assessments, providing feedback, grading, and checking attendance. But in contrast to the teachers' "aware" level in this domain some studies stated that teachers are skeptical of the accuracy of AI and lack adequate knowledge, which obstructs them from utilizing AI in their teaching practices (Idrissu et al., 2024; Taipicaña et al., 2024). To bridge the gap between knowing about something and actually doing something, higher education institutions must prioritize strengthening the faculty's use of AI, along with presenting clear guidelines that will empower teachers to have control over the use of AI in their administrative tasks.

Engagement of Students

Similarly, the dimension of engaging students in using AI exhibits an awareness level; thus, this suggests that teachers can manage to engage their students with the assistance of AI. The mean score, which is 2.65, has garnered the highest among the four dimensions of this study, suggesting that most of the respondents have moderate to high awareness, and the negative skewness, which is -0.20, presents a significant portion of instructors who still demonstrate limited knowledge or utilization of AI for engaging students in a blended learning environment.

In the Philippines, most schools and institutions have continued implementing the blended learning modality even after the pandemic period. Hence, teachers have found ways to engage with their students in an online distance learning (ODL) modality, which can be attributed to the level of awareness of teachers on engaging students. The "aware level" reflects that the faculty members are familiar with AI-powered gamified tools such as Quizziz, Menti, and Kahoot, which are intended to reinforce participation through interactive, game-like experiences. Participants of the study also stated that current gamified tools with AI features contributed to the awareness level that led them to use them in their classes, which helped in promoting participation and engagement.

The Self-Determination Theory (Deci & Ryan, 2014) confirms this insight, which suggests that when learners experience autonomy, competence, and relatedness, their motivation increases. Therefore, the moderate-to-high mean score of 2.65 implies that there is sufficient knowledge of teachers' use of AI in terms of engaging students in a blended learning environment. This also indicates that the university must invest in training and supporting teachers to be more confident in sharpening their teaching strategies with the appropriate use of AI. To demonstrate its importance, the study of Huang and Zhang (2025) shows that the training program involved in the study has effectively improved teachers' understanding and application of AI technology. This suggests that well-designed training can directly address the knowledge gap among educators regarding emerging technologies.

In the study of Balajadia et al. (2023), a 'moderate awareness level' among the teachers implies that there is an intermediate understanding of the commonly used AI tool, which is ChatGPT, across various domains. Because technology changes, AI's features and potentials will continue to upgrade as well, thus there must be continuous understanding of AI's full capabilities and opportunities among various institutions.

This is supported by the study's recommendation for educational seminars and workshops to facilitate effective utilization of AI tools. The innovation of AI appeals to students, according to some of the participants of this study. The new features of some Gamification and Collaboration tools offer engaging activities that traditional teaching methods cannot offer. According to Zainuddin (2024), the current technology's novelty can enhance motivation, particularly for students who find traditional learning environments less stimulating because most AI tools often incorporate gamified elements like points, levels, and interactive feedback, which are seen as creating a motivational framework that encourages students to progress through tasks. Though engaging students in this manner makes it more interesting and enjoyable, the effectiveness of this approach may diminish over time because the "novelty effect" has the tendency to fade and may not sustain the engagement in class.

The high mean score in this dimension indicates that many teachers are ready to integrate AI more effectively, especially in blended learning contexts. However, to fully adapt the ability of AI to engage students effectively, sustained support and initiatives are needed. The objective of these development programs is to cultivate an educational environment where teaching and learning are empowered by human touch, but with the AI educational tools as the co-pilot.

Conclusion

This study assessed the awareness of the college teachers at the University of the Cordilleras on the utilization of AI in teaching. The findings present moderate awareness in personalized learning and writing assistance, while automating administrative tasks and engaging students are at the awareness level. The overall interpretation presents that the educators recognize the potential of AI in their teaching practices. The gaps that are illustrated in this study are due to the limited training, time constraints, and workload demands. The results imply a need for targeted AI training and institutional support to enhance integration in instruction. Since this study focused on one institution, it is recommended that broader research will help to validate these findings. Empowering teachers' AI literacy will be essential in improving the instructional quality and efficiency in higher education institutions.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

In the preparation of this research paper, various AI-powered tools were utilized to support and enhance the writing and research process. Specifically, ChatGPT was used to assist in organizing content, clarifying concepts, and refining the structure of the manuscript. Grammarly and Quillbot were employed to improve the mechanics of writing, including grammar, punctuation, clarity, and paraphrasing where necessary. Litmaps and SciSpace were used to help locate and summarize relevant literature to support the development of the review of related studies and the theoretical framework. All AI-assisted inputs were critically reviewed, edited, and verified to ensure accuracy, originality, and academic integrity. The final content reflects my intellectual contributions and scholarly judgment.

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