

Student Perceptions of Generative AI in Personalized Distance Learning: The Moderating Effects of Usage Frequency and Faculty Encouragement

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Abstract. As generative artificial intelligence (GAI) tools such as ChatGPT, Grammarly, and Quillbot become increasingly embedded in digital education, understanding how students perceive their role in personalized distance learning, across both asynchronous and synchronous modes, remains crucial. Anchored in Sustainable Development Goal 4 (SDG 4), which promotes inclusive and equitable quality education and lifelong learning opportunities for all, this study investigates how GAI utilization relates to students' perceptions of usefulness, motivational impact, and ethical implications. It also examines whether usage frequency and faculty encouragement moderate these relationships. Using a descriptive-correlational design with moderation analysis, data were collected from 327 undergraduate students at Tagoloan Community College through a validated questionnaire (CVI = 0.94). Overall, findings revealed that students perceived GAI as highly beneficial for learning and self-motivation, reflecting growing confidence in using AI responsibly. Results from General Linear Modeling indicated that GAI utilization was a significant predictor of students' perceptions ($F = 169.32$, $p < .001$, $\eta^2_p = .345$), suggesting that direct engagement with AI tools strongly shapes educational value and learning experiences. However, neither usage frequency ($F = 0.99$, $p = .396$) nor faculty encouragement ($F = 0.75$, $p = .475$) significantly moderated this relationship. Interestingly, despite limited faculty support (11.3%) and the predominant use of ChatGPT (96.9%), students demonstrated ethical awareness through responses that emphasized citation practices, verification of AI-generated outputs, and the avoidance of plagiarism, indicating reflective and responsible learning behaviors. These findings highlight the primacy of student agency over institutional influence in fostering meaningful AI engagement. The study recommends that educators and institutions implement structured, ethical, and student-centered integration of AI tools into curricula through digital literacy workshops, academic integrity guidelines, and scaffolded AI-supported learning tasks to enhance autonomy, critical engagement, and responsible technology use, aligned with the objectives of SDG 4.

Keywords: Faculty encouragement; Ethical AI use; Educational technology; Generative AI, Moderating effect; Personalized distance learning; SDG 4, Student agency

1.0 Introduction

In the era of digital transformation, generative artificial intelligence (GAI) tools such as ChatGPT, Grammarly, Quillbot, and DALL-E have become increasingly embedded in higher education. These tools enable learners to engage with personalized, self-paced, and adaptive content, features particularly valuable in distance learning

environments. As online and hybrid learning models continue to shape post-pandemic education in the Philippines, especially in developing institutions like Tagoloan Community College, GAI allows students to tailor their learning experiences, bridge understanding gaps, and enhance academic productivity (Almassaad et al., 2024; Fakhri et al., 2024). These developments directly contribute to Sustainable Development Goal 4 (SDG 4), which advocates for inclusive, equitable, and quality education through the integration of technology to support lifelong learning for all (Miao et al., 2023).

However, alongside these advantages come pressing ethical challenges. Issues such as plagiarism, academic dishonesty, misinformation, and algorithmic bias have sparked debates about the responsible use of AI in academic contexts (Chan & Hu, 2023; Obenza et al., 2024). Without institutional guidance, students risk developing dependence on AI-generated content or misusing tools for unethical purposes. Thus, exploring students' perceptions of GAI must also consider how ethical awareness influences their motivation, learning autonomy, and engagement. Connecting these ethical dimensions early on provides a holistic understanding of how AI shapes both the cognitive and moral aspects of learning in the digital age.

Globally, educational institutions are beginning to recognize AI's transformative role in instructional design and student support. For example, Khlaif et al. (2024) emphasize the need for ethical and inclusive AI adoption to foster personalized learning environments, while Saihi et al. (2024) highlight how AI-driven platforms can enhance self-regulated learning. These global developments underscore AI's potential to bridge educational disparities, promote digital inclusion, and strengthen learner agency. However, optimism surrounding AI's promise is tempered by unequal access, ethical uncertainty, and variations in digital literacy across contexts.

In the Philippine setting, particularly in resource-limited academic institutions, GAI use is often initiated by students rather than guided by institutions. Many faculty members remain cautious or hesitant to integrate AI tools into teaching, often due to limited digital competence, lack of training, concerns about plagiarism, or uncertainty about institutional policies. Consequently, only a small proportion of faculty actively encourage students to use AI, leaving learners to explore and apply these tools independently. This imbalance highlights the growing need for structured faculty development and digital ethics programs that align with SDG 4.3 and 4.5, which call for equitable access to affordable, quality higher education and the reduction of inequality in learning opportunities.

Despite growing global attention, significant gaps remain in the literature concerning students' perceptions of GAI within personalized distance learning frameworks. While existing studies have explored AI's roles in assessment, feedback, and productivity enhancement, few have examined how students in developing countries autonomously integrate GAI into daily learning practices (Al-Emran et al., 2025; Bano et al., 2023). Addressing this gap is crucial to advancing digital inclusion and supporting lifelong learning opportunities through equitable access to educational technologies, as SDG 4.4 aims to do.

Furthermore, little attention has been given to the moderating effects of contextual variables such as usage frequency and faculty encouragement. Most prior research treats these as independent predictors rather than factors that may alter the relationship between GAI use and students' perceptions. Understanding these moderating effects provides deeper insight into the social and behavioral dynamics of AI adoption, especially in environments with limited institutional support. In response, this study proposes a moderation model to determine whether the relationship between GAI utilization and students' perceptions varies depending on how frequently students use these tools and whether they receive encouragement from their instructors. By integrating these variables, the study provides a nuanced analysis of both individual agency and institutional influence in GAI engagement.

This investigation is timely, as emerging studies report that students perceive AI tools as valuable aids for clarifying complex concepts, enhancing motivation, and improving academic performance (Ivanov et al., 2024; Sergeeva et al., 2025). However, concerns about accuracy, ethical misuse, and overreliance persist (Alotaibi, 2025). Therefore, this study examines how students at Tagoloan Community College perceive GAI within the context of personalized distance learning and explores how usage frequency and faculty encouragement moderate these perceptions. Ultimately, it aims to provide insights for strengthening teacher training, institutional readiness, and digital ethics policies that promote responsible, student-centered, and SDG-aligned AI integration, empowering learners while upholding academic integrity in the digital age.

2.0 Methodology

2.1 Research Design

This study employed a quantitative descriptive-correlational research design with a moderation analysis component. The descriptive aspect aimed to determine the extent of students' use of generative AI (GAI) tools and their perceptions regarding usefulness, motivation, and ethical concerns in the context of personalized distance learning. Descriptive-correlational designs are widely used in educational research to examine relationships among naturally occurring variables without manipulation, making them appropriate for studying perceptions and behaviors in real-world settings (Creswell & Creswell, 2018; Fraenkel, Wallen, & Hyun, 2019). The correlational component assessed the strength and direction of associations between GAI utilization and students' perceptions. At the same time, the moderation analysis tested whether the frequency of GAI use and faculty encouragement altered the strength of these relationships. Moderation analysis is particularly useful for identifying interaction effects, conditions under which the effect of a predictor variable on an outcome depends on a third variable (Hayes, 2018). This research design was appropriate for capturing both the direct and conditional effects of GAI utilization on student perceptions in a localized distance-learning context, thereby offering more profound insights into the socio-behavioral and pedagogical dynamics of AI adoption in education.

2.2 Participants and Sampling Technique

The participants of this study were undergraduate students enrolled in the College of Education at Tagoloan Community College during the second semester of Academic Year 2024–2025. A required sample size of 327 students was determined using the Raosoft Sample Size Calculator, based on a 5% margin of error and a 95% confidence level, standard thresholds in educational and social science research to ensure statistical validity and representativeness (Bartlett, Kotrlik, & Higgins, 2001). To select participants, the researchers employed a simple random sampling technique, a probability-based approach that ensures each eligible student has an equal chance of inclusion. This method minimizes sampling bias and enhances the generalizability of findings (Etikan & Bala, 2017). The official list of enrolled students was obtained from the Office of the College Registrar and served as the sampling frame. Each student was assigned a unique identification number, and the RAND function in Microsoft Excel was used to generate a randomized selection. This computerized procedure ensured transparency and reproducibility in sampling (Creswell & Creswell, 2018). To align with the study's objective of examining perceptions based on actual usage, only students who had prior experience using at least one generative AI tool for academic purposes (for example: ChatGPT, Grammarly, Quillbot, or DALL·E) were included. Students without any prior exposure to GAI tools were excluded from the study. Based on the initial screening, approximately 48 students were excluded for lack of experience with generative AI, leaving a final, qualified sample of 327 students. This inclusion criterion ensured that the data reflected informed perspectives grounded in direct interaction with the technology (Dwivedi et al., 2023).

2.3 Research Instrument

The research instrument used in this study is a researcher-made, structured questionnaire developed to assess students' perceptions of generative artificial intelligence (GAI) in personalized distance learning. It was carefully aligned with the study's research questions and objectives, enabling both descriptive and inferential statistical analyses. The questionnaire consists of five major sections: (1) respondent profile, which collects data on the frequency of GAI use, faculty encouragement, and demographic information; (2) utilization of GAI tools for personalized learning tasks; (3) perceptions of GAI's usefulness and trustworthiness; (4) perceptions of GAI's influence on motivation, engagement, and autonomy; and (5) perceptions related to ethical use and academic integrity. Each item used a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). To improve its content validity, alignment, and reliability, several revisions were made to the original questionnaire. These revisions were informed by the study's statement of the problem, expert validation, and psychometric testing.

While the item "I use GAI tools to adjust learning content based on my pace and preferred style" served as a key indicator of personalized learning, future studies may consider disaggregating the concepts of pace and style for greater construct clarity. This would allow researchers to distinguish more precisely between temporal flexibility and content-adaptation preferences.

Table 1. Summary Table of Constructs and Sample Items

Construct	Description	Sample Item
GAI Utilization	Frequency and purpose of using GAI tools for academic tasks.	"I use GAI tools to adjust learning content based on my pace and preferred style."
Usefulness and Trustworthiness	Students' perception of GAI's effectiveness and credibility.	"I trust the information generated by GAI tools."
Motivation and Engagement	Influence of GAI on learning motivation, autonomy, and class engagement.	"I feel more confident completing academic tasks with GAI support."
Ethical Concerns and Academic Integrity	Awareness and attitudes about responsible and ethical GAI use.	"I believe clear institutional policies on GAI use should be in place."

The original questionnaire grouped items broadly without a clear separation between constructs. The revised version categorized items into four focused subscales: (a) GAI Utilization, (b) Usefulness and Trustworthiness, (c) Motivation and Engagement, and (d) Ethical Concerns and Academic Integrity. This restructuring aligned the instrument with SOPs 2 and 3 and improved the interpretability of results. Items that were vague or not behavior-specific, such as "I am familiar with GAI tools", were reworded to reflect observable actions and perceptions. For instance, statements were revised into more measurable forms, such as "I use GAI to review or summarize my academic lessons," thereby enhancing the accuracy and validity of responses.

Redundant items were consolidated, and new ones were added to capture missing but relevant dimensions, including students' self-regulation, clarification-seeking behaviors, dependence risks, and awareness of institutional policies on AI use. These additions addressed gaps identified in SOPs 3.2 and 3.3. Initially limited to two variables, the profile section was expanded to include year level, academic program or strand, and the specific types of GAI tools used. These additional variables supported richer subgroup analyses and the inclusion of moderation modeling in line with SOPs 4, 5, and 6. All perception-related items were standardized on a 5-point Likert scale. This uniform structure facilitated the application of descriptive statistics, t-tests, ANOVA, and General Linear Modeling (GLM), ensuring compatibility with the study's statistical approach.

The revised questionnaire underwent expert validation by three specialists in educational technology and quantitative research methodology. The experts evaluated each item on clarity, relevance, alignment with research objectives, and appropriateness of the construct measurement. Based on their feedback, several items were refined to reduce ambiguity and improve conceptual alignment, particularly in the domains of ethical awareness, motivation, and perceived usefulness of generative AI. The resulting Content Validity Index (CVI) of 0.94 indicates a high level of agreement among the experts regarding the instrument's content adequacy and representativeness. This score demonstrates that the items effectively captured the intended dimensions of GAI perception within personalized distance learning. Subsequently, the questionnaire was pilot-tested among 30 undergraduate students from programs not included in the main study. The pilot test aimed to identify unclear wording, test response time, and evaluate the scale's psychometric soundness. Results showed a Cronbach's alpha of 0.949, signifying excellent internal consistency. Moreover, item-total correlations and inter-item consistency checks confirmed that all items contributed meaningfully to their respective constructs, thereby validating the instrument's reliability and construct coherence. These revisions and tests strengthened the instrument's methodological rigor, ensuring that it was both valid and reliable for large-scale deployment (Dwivedi et al., 2023).

2.4 Data Gathering Procedure

Data collection was conducted over two weeks using a hybrid approach that combined online and printed questionnaires to promote accessibility for students with varying levels of digital connectivity. Students with reliable internet access received a Google Forms link, while those with limited or no internet access received printed copies. Distribution and retrieval were facilitated through program coordinators and class advisers to ensure broad coverage across the College of Education. Before administering the survey, participants were informed of the study's purpose, voluntary participation, and confidentiality measures. They were assured that withdrawal at any point would not entail academic penalties. Since the study focused on students' naturally occurring perceptions, no experimental manipulation was involved.

After the collection phase, all responses were consolidated into a single database. Printed questionnaires were

manually encoded using a double-entry verification method to minimize transcription errors and ensure data accuracy. The compiled dataset was initially processed in Microsoft Excel before being exported to SPSS for analysis. Of the 345 questionnaires distributed, 327 valid responses were retained after screening for completeness, resulting in a usable response rate of 94.78%, which exceeds the acceptable benchmark for survey research (Bartlett, Kotrlik, & Higgins, 2001). While the hybrid approach strengthened inclusivity and reduced sampling bias, a potential limitation is the variability in response engagement between online and paper-based participants: online respondents may have provided more detailed reflections. In contrast, paper-based respondents might have experienced time constraints. Nonetheless, these differences were mitigated through consistent instructions and clear item formatting, upholding the integrity and comparability of the data.

2.5 Data Analysis Procedure

Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize respondents' demographic profiles and their perceptions of generative AI (GAI) in personalized distance learning. These descriptive measures provided an overview of students' usage behaviors, levels of faculty encouragement, and responses to perception constructs such as usefulness, motivation, and ethical awareness. To examine whether usage frequency and faculty encouragement moderated the relationship between GAI utilization and students' perceptions, a moderation analysis was conducted using the General Linear Model (GLM) framework. Specifically, interaction terms (e.g., GAI Utilization * Usage Frequency and GAI Utilization * Faculty Encouragement) were created and entered into the model.

To illustrate, moderation analysis allows us to explore how one variable changes the strength of another. For example, faculty encouragement might amplify the positive impact of GAI use on student perceptions, meaning that students who receive active encouragement from teachers may view AI tools more favorably than those who receive little or no guidance. Conversely, if no moderation effect is found, it suggests that the relationship between GAI use and perception remains stable regardless of faculty involvement. This example demonstrates why moderation analysis is critical for identifying underlying social and contextual dynamics.

The GLM approach was chosen over traditional methods such as hierarchical regression due to its flexibility in accommodating both categorical and continuous variables, its ability to estimate main and interaction effects simultaneously, and its provision of interpretable metrics, such as partial eta squared (η^2_p), for effect-size interpretation. Additionally, GLM provides robust diagnostic tools to test assumptions such as normality, linearity, and homoscedasticity (Hayes, 2018; Zawacki-Richter et al., 2019; Dwivedi et al., 2023). All analyses were performed using Jamovi, which supports advanced GLM functions, including fixed-effects modeling, omnibus ANOVA testing, and post hoc comparisons. Assumption checks for residual normality and outlier detection were conducted to ensure model validity. Data preprocessing, including coding and cleaning, was performed using SPSS to maintain accuracy and integrity throughout the process. This comprehensive analytical approach combined statistical rigor and conceptual clarity, enabling a nuanced understanding of how student behavior and institutional support interact to shape perceptions of GAI in distance learning contexts.

2.6 Ethical Considerations

Ethical standards were rigorously upheld throughout this study. As Tagoloan Community College does not maintain a formal institutional ethics review board, the researcher secured written approval from both the College Dean and the Vice President for Academic Affairs prior to data collection. Institutional authorization is a foundational component of ethical research governance, particularly in educational settings where formal review structures may be limited (Israel & Hay, 2006).

Informed consent was obtained from all participants after they were fully briefed on the study's purpose, procedures, risks, and their rights as research participants. The informed consent form complied with institutional guidelines for student research. It was pre-tested during the pilot phase of the study to ensure clarity, comprehension, and appropriateness of language. This alignment ensured that participants could make informed decisions without ambiguity or confusion. Participants were explicitly informed of their right to decline or withdraw from the study at any point without penalty. To mitigate risks of coercion, particularly in an academic setting, the researcher emphasized that participation was voluntary and that responses would have no bearing on grades or academic standing. This practice upholds ethical principles of autonomy, transparency, and respect for persons (Babbie, 2021; Orb et al., 2001).

All data were treated with strict confidentiality. The survey did not collect personal identifiers such as names, ID numbers, or contact information. Responses were anonymized to ensure that individual participants could not be identified, in line with ethical guidelines on data privacy and risk minimization (Wiles et al., 2008). Completed paper questionnaires were stored in a locked cabinet accessible only to the researcher, while digital files were stored in a password-protected folder on a secure device. The study adhered to international ethical research standards, including those outlined in the Declaration of Helsinki (World Medical Association, 2013), and followed best practices in educational and social science research involving human subjects. These included principles of informed consent, voluntary participation, confidentiality, and protection from harm, ensuring that the rights and welfare of all participants were safeguarded throughout the research process.

3.0 Results and Discussion

3.1 Profile of Respondents

Table 2 presents the frequency and percentage distribution of student respondents based on how often they use generative AI (GAI) tools for academic purposes. The data reflect responses from N = 327 undergraduate students enrolled in the College of Education at Tagoloan Community College during the second semester of Academic Year 2024–2025. As shown in the table, 38.2% of the respondents reported using GAI tools daily, indicating a high level of integration of AI in their day-to-day academic activities. This suggests that for a substantial portion of students, GAI tools have become a regular part of their learning process, particularly in a distance-learning setting where self-directed learning tools are often necessary (Martínez-Muñoz et al., 2024; Bano et al., 2023). Another 20.8% of respondents reported using GAI tools weekly, indicating consistent use, though at a slightly lower frequency.

Table 2. Frequency and Percentage Distribution of Respondents in Terms of Generative AI Tools for Academic Purposes

How frequently do you use generative AI tools for academic purposes?	Frequency	%
Daily	125	38.2%
Weekly	68	20.8%
Occasionally	50	15.3%
Rarely	84	25.7%
Never	0	0.0%
Total	327	100.0%

Occasional users accounted for 15.3%, while 25.7% indicated rare use. These students may be exploring GAI tools with caution, possibly due to a lack of confidence, limited access, or uncertainty about ethical guidelines for their use (Sutherland & Holmes, 2024). Notably, no respondents selected “Never,” as non-users of GAI were excluded from the study, consistent with the inclusion criteria that required prior exposure to at least one generative AI tool for academic purposes. These usage patterns align with current global trends, indicating an increasing reliance on GAI tools among students for academic support, especially in contexts that demand autonomy and adaptive learning (Lin et al., 2024). This mirrors Quiño's (2022) findings, in which students similarly expressed high levels of satisfaction and reliance on digital learning platforms for flexible learning. Both sets of results emphasize that digital and AI-driven platforms have become essential tools in supporting students' learning processes in higher education. Furthermore, as generative AI becomes more embedded in academic culture, it is vital to consider the implications for educational design and institutional support mechanisms (García-Peñalvo et al., 2025).

Table 3 shows the frequency and percentage distribution of responses from N = 327 undergraduate students enrolled in the College of Education at Tagoloan Community College regarding faculty encouragement to use generative AI (GAI) tools in their academic activities. According to the data, 204 of the respondents (62.40%) indicated that their instructors do not encourage the use of GAI tools in their learning tasks. This suggests a prevalent lack of faculty-initiated support or promotion of AI-based learning technologies in the academic environment. This finding is particularly notable when compared with Table 1, which shows that 38.20% of students reported daily use of GAI tools for academic purposes. The contrast between high student use and low faculty encouragement suggests a disconnect between students' learning behavior and instructional guidance, a gap that may influence how students perceive the value, legitimacy, and ethical use of GAI (García-Peñalvo et al., 2025; Sweeney & Velasquez, 2024).

Table 3. *Distribution of Respondents in Terms of Faculty Encouragement on the Use of Generative AI Tools for Learning Tasks*

Do your instructors or faculty encourage the use of generative AI tools in your learning tasks?	Frequency	%
Yes	37	11.3%
No	204	62.4%
Maybe	86	26.3%
Total	327	100.0%

On the other hand, only 11.30% (37 students) reported that their faculty members actively encourage the use of GAI tools. These students may benefit from a more open and adaptive learning environment that integrates AI into instructional strategies (Martínez-Muñoz et al., 2024). Meanwhile, 26.30% (86 students) responded with “Maybe,” reflecting uncertainty, possibly due to inconsistent messages or unclear policies from their instructors regarding GAI use (Abdel-Rahman & Alsmadi, 2024).

When considered alongside Table 1, this table highlights the complexity of the educational environment, where student-driven innovation in technology use is not always matched by faculty practices or institutional policy. For example, Quiño (2022) found that while students generally reported positive perceptions of Google Classroom’s usefulness and ease of access, faculty readiness and consistent guidance were critical factors in shaping compelling learning experiences. This gap highlights the need for professional development programs and clear guidelines to equip faculty with the tools and confidence to guide students in the responsible and effective use of generative AI technologies (Khateeb & Al-Emran, 2025).

Table 4 illustrates the distribution of N = 327 undergraduate students from the College of Education at Tagoloan Community College, detailing the specific generative AI (GAI) tools they frequently use in academic tasks. As shown in Table 3, ChatGPT emerged as the overwhelmingly dominant tool, with 317 out of 327 students (96.90%) reporting it as their most frequently used GAI application. This finding strongly reflects the tool’s accessibility, versatility, and widespread adoption in educational contexts, especially for tasks such as essay generation, summarization, question answering, and language support (Bano et al., 2023; Lin et al., 2024). ChatGPT’s prominence aligns with Table 1, which shows that 38.20% of students use GAI daily, suggesting that much of this frequent use centers on ChatGPT specifically.

Table 4. *Frequency and Percentage Distribution of Respondents in Terms of Generative AI Tools Frequently Used in Learning Tasks*

What type of generative AI tools do you frequently use in your learning tasks?	Frequency	%
Boomy – Allows users to create songs with AI-generated beats and vocals.	1	0.3%
Jasper – Used for writing blogs, marketing content, and product descriptions.	1	0.3%
Midjourney – Turns written descriptions into artistic images.	1	0.3%
Stable Diffusion – Open-source tool for generating detailed images.	1	0.3%
CodeWhisperer (by AWS) – AI that assists developers with real-time coding suggestions.	2	0.6%
Copy.ai – Creates ad copy, email campaigns, and social media captions.	4	1.2%
ChatGPT – Generates essays, summaries, stories, and answers to questions.	317	96.9%
Total	327	100.0%

In contrast, other tools such as Boomy, Jasper, Midjourney, and Stable Diffusion were each cited by only one student (0.30%), while CodeWhisperer (0.60%) and Copy.ai (1.20%) were used slightly more, yet still minimally. These tools serve more specialized functions such as AI-generated music, visual content creation, or programming assistance, which may not directly align with the typical academic needs of education students. The minimal use of these tools also corresponds to the study’s context in distance learning for future educators, where general-purpose AI tools like ChatGPT are more practical and relevant (Gilli & Tzovla, 2025).

Despite ChatGPT’s high usage rate, Table 2 indicated that 62.40% of students reported no encouragement from faculty to use GAI, underscoring a gap between actual student behavior and instructional support (García-Peñalvo et al., 2025). This disconnect may influence students’ perceptions regarding the usefulness, motivation, and ethical implications of AI tools in their learning process, as explored in the succeeding parts of the study (Khateeb & Al-Emran, 2025).

Overall, Table 3 emphasizes that student interaction with generative AI is currently concentrated on a single, multipurpose platform, ChatGPT, while the potential of more specialized tools remains largely untapped. This

finding may prompt future research and curriculum development efforts aimed at expanding students' digital literacy and encouraging the pedagogically guided exploration of a broader range of AI applications (Martínez-Muñoz et al., 2024).

3.2 Utilization of GAI for Personalized Distance Learning

Based on the mean scores and standard deviations for students' utilization of generative AI (GAI) tools for personalized distance learning. Based on the responses of $N = 327$ undergraduate students from the College of Education at Tagoloan Community College, the overall mean score was $M = 3.79$ ($SD = 0.88$), which falls under the interpretation of "Agree." This suggests that students generally use GAI tools to support and personalize their learning experiences in distance education (Bano et al., 2023; Lin et al., 2024). Among the eight indicators, the highest mean score was recorded for the statement, "I use GAI tools to adjust learning content based on my pace and preferred style," with $M = 4.31$ ($SD = 0.72$), interpreted as "Strongly Agree." This finding implies that the most valued function of GAI among students is its ability to personalize content delivery, allowing learners to control the timing, complexity, and format of material to suit their individual learning needs. This supports the central advantage of AI-supported distance education: its flexibility and adaptability (Khateeb & Al-Emran, 2025). In contrast, the statement "I combine multiple GAI tools to support my learning process" received the lowest mean score of $M = 3.41$ ($SD = 1.08$), though still interpreted as "Agree." This suggests that while students use GAI tools frequently, they tend to rely on a single platform — most likely ChatGPT — as shown in Table 3, where 96.90% of respondents reported using ChatGPT over other GAI tools. This limited diversity in tool usage may reflect either a lack of awareness of alternative tools or a preference for ChatGPT's simplicity and multifunctionality (Martínez-Muñoz et al., 2024).

These findings reinforce earlier observations in Table 1, where a large proportion of students reported daily GAI usage (38.20%), as well as insights from Table 2, which showed that only 11.30% of students received faculty encouragement to use such tools. Despite limited institutional support, students are independently integrating GAI into their distance learning routines, highlighting a student-driven adaptation to emerging technologies (García-Peñalvo et al., 2025). The implication is clear: GAI tools are reshaping how students personalize learning in online settings, even in the absence of strong faculty advocacy. This suggests a growing need for institutions to recognize these practices and provide structured guidance, training, and policy development to maximize the pedagogical potential of GAI while ensuring responsible and ethical use (Belshaw & Perry, 2024).

3.3 Students' Perceptions of Generative AI in Personalized Distance Learning

In Terms of Usefulness and Trustworthiness of GAI

Based on the students' perceptions of generative AI (GAI) in personalized distance learning, specifically in terms of its perceived usefulness and trustworthiness. Based on responses from $N = 327$ undergraduate students in the College of Education at Tagoloan Community College, the overall mean score was $M = 3.71$ ($SD = 0.80$), indicating "Agree." This indicates that, on average, students have a positive perception of the usefulness and reliability of GAI tools, which they frequently use to support their academic tasks, as established in previous tables (Bano et al., 2023; Lin et al., 2024).

The statement with the highest mean score was, "GAI tools help me better understand difficult topics," with $M = 4.03$ ($SD = 0.74$), suggesting that students strongly value the explanatory function of GAI tools. This aligns with findings in Table 1, where a significant number of students reported daily (38.20%) or weekly (20.80%) use of GAI, and in Table 3, where 96.90% of respondents identified ChatGPT as their primary tool, likely due to its effectiveness in simplifying complex concepts in a conversational format (Khateeb & Al-Emran, 2025). This strong agreement indicates that GAI is actively enhancing students' comprehension in a distance-learning setting, where real-time instructor feedback may be limited.

Conversely, the statement with the lowest mean score was, "I trust the information generated by GAI tools," with $M = 3.42$ ($SD = 0.82$). Although it is still interpreted as "Agree," this lower rating indicates reservations about the accuracy or reliability of GAI-generated outputs. This is supported by students' reported behavior in the item, "I verify AI-generated content before using it," which received a higher mean of $M = 3.90$ ($SD = 0.83$), suggesting that while students use GAI frequently, they remain cautious and often seek to confirm the content's credibility (Belshaw & Perry, 2024; Sutherland & Holmes, 2024).

These findings carry important implications. While students recognize the instructional benefits of GAI in

enhancing understanding and improving academic outputs, there is also an evident need for guidance on evaluating AI-generated content. This connects with findings from Table 2, where 62.40% of students reported no faculty encouragement for GAI use, and only 11.30% said their instructors promote its use. The lack of institutional or instructional support may leave students without a clear framework for assessing the trustworthiness of GAI tools, underscoring the need for teacher training, the integration of digital literacy, and clear guidelines on the ethical and important use of AI in learning (García-Peñalvo et al., 2025).

In Terms of GAI's Impact on Motivation and Engagement

In addition, students' perceptions of the impact of generative AI (GAI) tools on their motivation and engagement in personalized distance learning are examined. The overall mean score was $M = 3.62$ ($SD = 0.80$), indicating "Agree" and suggesting that students generally perceive GAI tools as positively influencing their motivation and engagement in academic tasks (Bano et al., 2023; Lin et al., 2024). Among the individual statements, the highest-rated item was, "I use GAI to take initiative in learning beyond class requirements," with $M = 3.90$ ($SD = 0.76$). This suggests that students view GAI as a tool that encourages self-directed learning and exploration, empowering them to go beyond the minimum requirements of coursework, an essential trait for success in distance learning environments (Khateeb & Al-Emran, 2025).

In contrast, the statement with the lowest mean score was "I continue exploring topics on my own after receiving AI explanations," with a mean of 3.47 ($SD = 0.83$). While still interpreted as "Agree," this slightly lower score suggests that although GAI tools are effective in providing initial explanations, they may not always lead to sustained inquiry or deep engagement without additional motivation or instructional support. This could reflect limitations in how AI responses stimulate curiosity or important thinking, or a possible reliance on AI outputs as endpoints rather than starting points for more profound exploration (Prinsloo & Slade, 2024).

These findings align with earlier insights from Table 1, where a significant portion of students reported daily (38.20%) or weekly (20.80%) use of GAI, and from Table 3, which revealed that 96.90% of respondents primarily used ChatGPT, a tool known for rapid, accessible explanations. Additionally, Table 2 highlighted that only 11.30% of students reported receiving faculty encouragement to use GAI tools, which may limit opportunities for guided inquiry and deeper engagement with content (García-Peñalvo et al., 2025).

The implications are clear: while GAI tools are effective in boosting motivation and fostering initiative, their full potential to promote long-term engagement and independent learning may be constrained without faculty support, structured integration into coursework, and pedagogical guidance. This suggests a need for professional development among educators and for the creation of learning activities that intentionally harness GAI as a springboard for deeper academic inquiry rather than merely as a convenience tool (Martínez-Muñoz et al., 2024).

In Terms of Ethical Use and Academic Integrity

This study also highlights students' nuanced and ethically aware stance toward the use of generative AI (GAI) in personalized distance learning. With an overall mean score of $M = 3.93$ ($SD = 0.82$), interpreted as "Agree," the findings indicate that students generally recognize both the value and the ethical responsibilities that come with using GAI in academic settings (Belshaw & Perry, 2024; Salem & Alturki, 2025). This awareness aligns with Sustainable Development Goal 4 (SDG 4), notably Target 4.7, which advocates for education that promotes sustainable development, responsible citizenship, and digital responsibility.

The three highest-rated items, all with a mean of $M = 4.07$, were: "GAI might reduce my ability to think importantly on my own," "I have seen or heard of students misusing GAI for dishonest purposes," and "Ethical use of GAI should be taught explicitly in school." These responses reflect students' strong concerns about both the cognitive risks of overdependence on AI and the potential for academic misconduct. The data suggest that students are not unquestioningly embracing AI tools; instead, they are engaging with them, recognizing the necessity for explicit instruction and institutional guidance to use GAI responsibly. This readiness for ethical reflection is foundational for shaping globally responsible learners and supports SDG 4's vision of inclusive and transformative education.

Students' awareness of the dangers of overreliance on AI tools, particularly the erosion of important thinking, suggests a growing demand for curriculum reforms that address AI literacy and digital ethics. Moreover, the strong agreement on the need for formal instruction on GAI use implies that institutions must go beyond general

academic integrity policies and provide students with structured training on the ethical use of emerging technologies. These findings also emphasize the importance of preparing educators, through SDG 4.c, to integrate responsible AI pedagogy into their teaching practices.

In contrast, the lowest-rated item, “I avoid using GAI tools for tasks that require original analysis” ($M = 3.74$, $SD = 0.85$), though still within the “Agree” range, reveals a potential tension between students’ ethical understanding and their actual behavior. While students are aware of the risks of academic integrity, many may still rely on GAI tools for cognitively demanding tasks, perhaps because of their perceived efficiency or a lack of alternative academic support. This tension highlights the urgent need for clear institutional policies, pedagogical modeling, and continuous reinforcement of academic responsibility in digital spaces (Khateeb & Al-Emran, 2025).

Taken together, the findings suggest that students hold a balanced but cautious perspective on GAI use: they acknowledge the benefits of personalization and productivity, but they are equally concerned about its implications for academic integrity and intellectual development. This dual awareness is a promising indicator of digital maturity, but it must be supported by institutional frameworks that cultivate ethical judgment, important thinking, and responsible technology use.

Ultimately, these results reinforce the need to integrate digital ethics and AI literacy into the curriculum as part of a broader commitment to SDG 4. Educators and policymakers must create learning environments where students are empowered to use technology and equipped to make informed, ethical decisions, fostering a generation of learners prepared for both academic success and global digital citizenship.

The summary presented in Table 5 consolidates student perceptions of generative AI (GAI) in personalized distance learning across three domains: perceived usefulness and trustworthiness, motivational impact and engagement, and ethical use and academic integrity. With an overall mean score of $M = 3.74$ ($SD = 0.80$), interpreted as “Agree,” the data indicate that students generally view GAI tools favorably as part of their academic experience. This positive reception reflects the growing integration of digital technologies in education. It aligns with the broader goals of Sustainable Development Goal 4 (SDG 4), particularly its emphasis on equitable access to quality, inclusive, and technology-enhanced learning opportunities.

Table 5. *Summary Table of Students’ Perceptions of Generative AI in Personalized Distance Learning*

Students' Perceptions of GAI in Personalized Learning	Mean	SD	Interpretation
Perceived Usefulness and Trustworthiness of GAI	3.71	0.81	Agree
GAI's Impact on Motivation and Engagement	3.62	0.79	Agree
Perceptions on Ethical Use and Academic Integrity	3.93	0.82	Agree
Total	3.74	0.80	Agree

Among the three domains, students rated Ethical Use and Academic Integrity the highest ($M = 3.93$, $SD = 0.82$), revealing a strong sense of responsibility in navigating AI-assisted learning. This suggests that students are not only aware of the benefits of GAI tools but are also conscious of their potential misuse, including risks of dependency and academic dishonesty. Such ethical awareness is especially notable in contexts where institutional guidance remains limited, as reflected in Table 2, where only 11.3% of students reported receiving encouragement from faculty. This high ethical sensitivity speaks to students’ self-regulation. It highlights their readiness for more formal instruction on responsible AI use, aligning with SDG Target 4.7, which promotes education that fosters sustainable development, ethical behavior, and global citizenship.

In contrast, GAI’s Impact on Motivation and Engagement received the lowest mean score ($M = 3.62$, $SD = 0.79$), although still positive. This lower rating suggests that while students recognize the motivational potential of GAI tools, their effectiveness may depend on tool design, interactivity, or the presence of instructional scaffolding. As shown in Table 3, the overwhelming reliance on ChatGPT (96.9%) and minimal use of more dynamic or interactive AI tools may limit opportunities for deeper academic engagement. Furthermore, without adequate faculty integration of GAI into the learning process, its capacity to sustain motivation may remain underutilized, highlighting the need for teacher training and digital pedagogy aligned with SDG 4.c, which advocates increasing the supply of qualified educators through training in ICT competencies.

The domain of Perceived Usefulness and Trustworthiness ($M = 3.71$, $SD = 0.81$) also reflected moderately high ratings. Students generally found GAI content accessible and practical for academic support, although concerns

about accuracy and reliability remain. This cautious optimism reflects a developing level of digital literacy, a key competency outlined in SDG 4.4, and highlights students' growing ability to evaluate and cross-check AI-generated content. Their habit of verifying information demonstrates not only responsible tool usage but also a foundation for lifelong learning in a rapidly evolving digital landscape.

Taken together, these findings paint a picture of students who are both proactive and reflective in their use of GAI. They demonstrate a willingness to harness AI for personalized learning while exercising discernment and ethical judgment, qualities essential to navigating the demands of a knowledge-driven, tech-enabled society. However, the data also highlight the need for institutional policies, digital ethics education, and faculty engagement to support and amplify these positive behaviors. In the context of SDG 4, particularly Targets 4.4, 4.7, and 4.c, this study emphasizes the importance of equipping learners not only with access to technology but with the competencies and ethical guidance needed to use such tools meaningfully. Institutions must therefore respond with structured frameworks that integrate GAI into the curriculum, promote ethical reflection, and build teacher capacity to foster inclusive, student-centered, and future-ready education.

3.4 Relationship Between Students' Utilization of Generative AI Tools to Support Personalized Learning in Distance Education And their Perceptions of Generative AI

Table 6. *Correlation Between Utilization of Generative AI and Students' Perceptions in Personalized Distance Learning*

Table 6: Correlation between Utilization of Generative AI and Students' Perceptions in Personalized Distance Learning			
	Utilization of GAI for Personalized Distance Learning		Interpretation
Perceived Usefulness and Trustworthiness of GAI	Pearson's r	0.738	Strong Positive Correlation
	df	325	
	p-value	< .001	
GAI's Impact on Motivation and Engagement	Pearson's r	0.603	Moderate Positive Correlation
	df	325	
	p-value	< .001	
Perceptions on Ethical Use and Academic Integrity	Pearson's r	0.364	Weak Positive Correlation
	df	325	
	p-value	< .001	
Students' Perceptions of Generative AI in Personalized Distance Learning	Pearson's r	0.677	Moderate to Strong Positive Correlation
	df	325	
	p-value	< .001	

The findings in Table 6 reveal statistically significant positive correlations between students' utilization of generative AI (GAI) tools and their perceptions across three major domains: usefulness and trustworthiness, motivation and engagement, and ethical use and academic integrity. These results suggest that increased engagement with GAI tools is associated with more favorable perceptions of their educational value. This outcome supports Sustainable Development Goal 4 (SDG 4), particularly by advancing inclusive, equitable, and high-quality digital education.

The strongest relationship observed was between GAI utilization and the perceived usefulness and trustworthiness of these tools ($r = 0.74$, $p < .001$), indicating that frequent users are more likely to trust AI-generated content and view it as effective in enhancing comprehension and academic output. This aligns with students' strong agreement in earlier results (Table 5), in which GAI was perceived as helpful for clarifying complex topics and improving submission quality. Such findings highlight how GAI facilitates self-paced, student-driven learning, thereby supporting SDG 4.4, which emphasizes increasing the number of youth and adults with relevant skills, including technical and digital literacy for decent work and lifelong learning.

A moderate positive correlation ($r = 0.60$, $p < .001$) was found between GAI utilization and students' motivation and engagement. This suggests that students who use GAI more regularly tend to demonstrate greater academic initiative, confidence, and self-regulation, traits essential to thriving in distance-learning environments. These behavioral outcomes point to GAI's potential to foster autonomous, resilient learners, aligning with SDG 4's goal of promoting quality learning that is both inclusive and empowering, especially for students in under-resourced contexts.

Meanwhile, the correlation between GAI utilization and ethical awareness ($r = 0.36$, $p < .001$) was positive but comparatively weaker. While frequent users tend to be more aware of academic integrity issues, such as plagiarism and overreliance, the strength of this relationship suggests that students' ethical literacy varies. This finding highlights the need for structured instruction on responsible AI use. It reinforces the relevance of SDG Target 4.7, which calls for education that promotes sustainable development, human rights, global citizenship, and digital responsibility. Enhancing students' understanding of ethical AI use can contribute to a more informed and, importantly, engaged generation of learners equipped to navigate the digital age responsibly.

Finally, the overall correlation between GAI utilization and students' holistic perceptions ($r = 0.68$, $p < .001$) highlights that meaningful and consistent interaction with GAI fosters generally positive attitudes toward its integration in distance education. These findings emphasize the importance of intentional GAI use, not only as a tool for academic support but also as a catalyst for equity, digital inclusion, and lifelong learning, all pillars of SDG 4. They further support calls for educational institutions to develop ethical, pedagogically grounded frameworks that integrate GAI tools to promote both academic success and sustainable, values-based learning.

3.5 Moderating Role of Usage Frequency on the Relationship Between GAI Utilization and Students' Perceptions

Based on the General Linear Model (GLM) results from the Jamovi output, the frequency of generative AI (GAI) use does not significantly moderate the relationship between GAI utilization and students' perceptions of its role in personalized distance learning. The overall model demonstrated a good fit, with $R^2 = 0.47$ and adjusted $R^2 = 0.45$, indicating that the predictors explained 46.5% of the variance in students' perceptions. This substantial explanatory power suggests that the model meaningfully captures how students perceive GAI usage in academic contexts (Prinsloo & Slade, 2024).

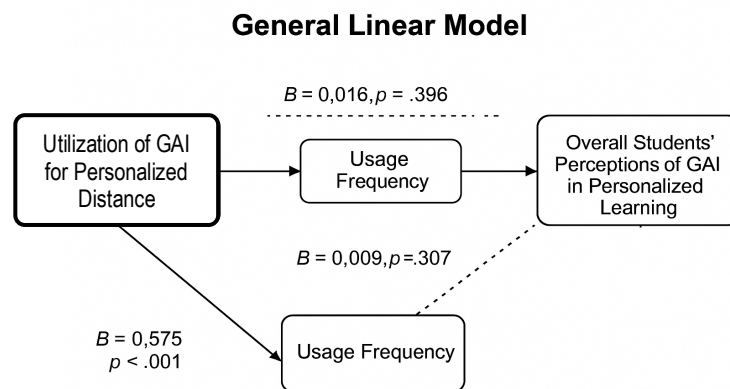


Figure 1. Moderation Model of Usage Frequency on the Relationship Between the Utilization of Generative AI for Personalized Distance Learning and Students' Perceptions of GAI in Personalized Learning

The main effect of GAI utilization was highly significant, $F(1, 319) = 251.76$, $p < .001$, $\eta^2p = 0.44$, reflecting a large effect size. This finding reinforces earlier results in Table 4, where students strongly agreed that GAI tools helped them understand complex topics ($M = 4.03$) and improve academic outputs ($M = 3.82$). It is also consistent with findings in Table 6 and Table 8, which showed enhanced motivation and overall positive student attitudes toward GAI use (Bano et al., 2023; Lin et al., 2024). In contrast, the main effect of usage frequency (daily, weekly, occasionally, or rarely) was not statistically significant, $F(3, 319) = 0.99$, $p = .396$, $\eta^2p = 0.01$. This indicates that the regularity of GAI use, on its own, does not substantially shape students' perception of its educational value. As shown in Table 1, while many students reported using GAI frequently (38.2% daily and 20.8% weekly), their perceptions of the tool's usefulness and impact did not vary meaningfully across these frequency groups (Ogola et al., 2025).

More importantly, the interaction effect representing the moderating role of usage frequency was also non-significant, $F(3, 319) = 0.33$, $p = .807$, $\eta^2p = 0.003$. This means that regardless of whether a student uses GAI rarely or frequently, the strength of the relationship between their utilization of the tool and their perception of its

academic value remains statistically unchanged.

A closer look at the interaction coefficients further supports this interpretation. All moderation terms – weekly, occasional, and rare use – had p-values above .37 and effect estimates close to zero. For example, the interaction term “GAI utilization * rarely” had an estimate of -0.00174 and a p-value of .984, confirming the absence of a moderating effect. Moreover, model assumptions were validated through normality tests: the Kolmogorov-Smirnov test ($p = .882$) and the Shapiro-Wilk test ($p = .071$), affirming the robustness of the GLM approach used in this analysis (Khateeb & Al-Emran, 2025).

The lack of a significant moderating effect may be attributed to the uniformity of tool preferences and the similarity of respondents' usage patterns. As noted in Table 3, 96.9% of students reported using ChatGPT, an accessible, multifunctional GAI tool. This overwhelming reliance on a single platform likely led to similar usage experiences regardless of frequency. Furthermore, students tended to use GAI tools for consistent academic purposes, such as summarizing, reviewing, or clarifying lessons. These patterns suggest that intentionality and quality of use may have a more meaningful impact on student perceptions than frequency alone.

These findings hold important implications for both pedagogy and policy. While students are clearly engaging with GAI in self-directed ways, the lack of variation in usage frequency may reflect a missed opportunity for more guided, transformative learning experiences. This points to a broader institutional gap: the absence of structured faculty involvement in digital tool integration.

In this context, the findings reinforce the need to strengthen teacher capacity-building, especially as outlined in SDG 4, Target 4.c, which emphasizes increasing the supply of qualified teachers through training in information and communication technology (ICT). When educators are empowered with the knowledge, confidence, and pedagogical strategies to incorporate GAI meaningfully into instruction, students may be guided to use these tools not just frequently, but more effectively and ethically. Faculty support is essential not only to enhance GAI's motivational and cognitive benefits but also to broaden its application beyond simple tasks and encourage higher-order thinking, collaboration, and reflective practice.

Although usage frequency does not significantly moderate the relationship between GAI utilization and students' perceptions, this result highlights the importance of pedagogical intent and institutional direction. For schools and higher education institutions, the focus should not be on increasing usage volume alone, but on equipping educators with the tools and training necessary to foster purposeful, equitable, and developmentally appropriate GAI use, ultimately advancing the goals of inclusive, quality education under SDG 4.

3.5 Moderating Role of Faculty Encouragement on the Relationship Between GAI Utilization and Students' Perceptions

According to the General Linear Model (GLM) results from Jamovi, faculty encouragement does not significantly moderate the relationship between GAI utilization and students' perceptions of its role in personalized distance learning. The model explained 46.1% of the variance in students' perceptions ($R^2 = 0.461$, adjusted $R^2 = 0.453$), indicating a robust fit and reinforcing earlier positive trends in perceptions of GAI adoption in academic contexts (Prinsloo & Slade, 2024). The main effect of GAI utilization was statistically significant, $F(1, 321) = 169.32$, $p < .001$, $\eta^2p = 0.345$, demonstrating a large effect size. This aligns with prior findings in Table 5 (e.g., $M = 4.03$ for perceived usefulness and trustworthiness) and Table 6 ($M = 3.90$ for motivational influence), and supports the consistently favorable student perception pattern shown in Table 8 (Bano et al., 2023; Lin et al., 2024).

Conversely, the main effect of faculty encouragement, categorized as “Yes,” “No,” or “Maybe,” was not statistically significant, $F(2, 321) = 0.75$, $p = .475$, $\eta^2p = 0.005$. Students' perceptions of GAI remained relatively consistent regardless of whether they received explicit support or instructor endorsement. This finding corresponds with the data in Table 2, where 62.4% of students reported receiving no faculty encouragement, and with Table 7, where ethical awareness, such as recognition of plagiarism risks ($M = 4.07$), appeared to emerge independently of direct instructional guidance (Salem & Alturki, 2025).

More notably, the interaction effect between GAI utilization and faculty encouragement was not significant, $F(2, 321) = 0.06$, $p = .947$, $\eta^2p = 0.000$. This suggests that students' perceptions of GAI are shaped primarily by their own usage experiences rather than by whether their instructors support GAI use. In practical terms, students who

receive encouragement from faculty do not differ significantly in their perceptions from those who do not.

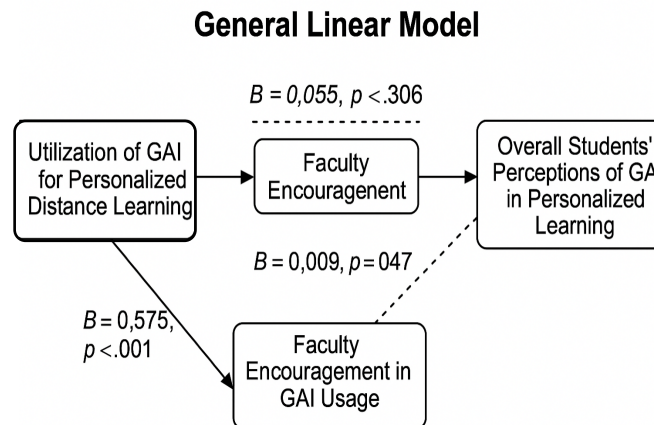


Figure 2. Moderation Model of Faculty Encouragement on the Relationship Between Utilization of Generative AI for Personalized Distance Learning and Students' Perceptions of GAI in Personalized Learning

The interaction coefficients further affirm this interpretation. The “GAI * No-Yes” interaction yielded $B = 0.009$, $p = .918$, and the “GAI * Maybe-Yes” yielded $B = 0.041$, $p = .747$; both effect estimates were close to zero and statistically insignificant. Additionally, the analysis satisfied all normality assumptions (Kolmogorov-Smirnov $p = .526$, Shapiro-Wilk $p = .067$), validating the use of the GLM framework in this context (Khateeb & Al-Emran, 2025).

Theoretically, the absence of a significant moderating role of faculty encouragement may reflect an evolving culture of student-led learning autonomy in digital environments. As shown in Table 3, 96.9% of students reported using ChatGPT, indicating a strong trend of self-initiated tool use. This pattern suggests that students have become increasingly independent in evaluating, exploring, and integrating GAI tools into their academic workflows, regardless of whether their instructors provide explicit guidance. This autonomy may also be a byproduct of institutional cultures in which innovation with educational technologies has yet to be fully embedded in curriculum design or teaching practices. Faculty, in turn, may be hesitant to endorse GAI tools due to concerns about academic integrity, lack of training, or the absence of clear institutional policies, limiting their capacity to influence student perspectives.

Furthermore, students may perceive faculty encouragement as less relevant when they can directly experience the academic benefits of GAI, such as improved comprehension, productivity, and motivation. This reinforces the idea that intrinsic motivation and lived academic experiences play a more influential role in shaping perceptions than top-down instructional messaging.

While student agency is a positive indicator of digital self-efficacy, the findings also highlight a missed opportunity for faculty to play a more active, formative role in framing, modeling, and integrating responsible GAI use in learning environments. The lack of faculty influence in this area underscores a broader institutional need for educator capacity-building. In line with Sustainable Development Goal 4, Target 4.c, which calls for a substantial increase in the number of qualified teachers through ICT-related professional development, this finding highlights the importance of equipping faculty with the knowledge, skills, and confidence to harness AI as a pedagogical tool.

Ultimately, the findings suggest that while GAI utilization is a strong and direct predictor of students' perceptions, faculty encouragement neither enhances nor diminishes this relationship. Moving forward, institutions must shift from passive tolerance of student-led GAI use to proactive, pedagogically grounded integration strategies. These should include faculty training, curriculum redesign, digital ethics education, and precise policy alignment to ensure that students use GAI independently within a structured, ethical, and educationally meaningful

framework (García-Peñalvo et al., 2025).

4.0 Conclusion

This study examined students' perceptions of generative artificial intelligence (GAI) in personalized distance learning, focusing on whether usage frequency and faculty encouragement moderated the relationship between GAI utilization and students' perceptions. Drawing on data from 327 undergraduate students at the College of Education, Tagoloan Community College, the findings revealed that students generally viewed GAI tools positively, particularly for their usefulness, motivational value, and ethical awareness. Notably, students demonstrated strong perceptions regarding academic integrity and responsible AI use, indicating not only their understanding of GAI's benefits but also their awareness of its ethical implications and potential risks. Statistical results showed that GAI utilization was a strong and significant predictor of students' perceptions ($F = 169.318$, $p < .001$, $\eta^2_p = 0.345$), suggesting that purposeful engagement with AI tools enhances positive attitudes toward their educational value. However, neither usage frequency ($F = 0.993$, $p = .396$) nor faculty encouragement ($F = 0.746$, $p = .475$) significantly moderated this relationship, implying that students' perceptions are shaped more by their independent experiences than by external reinforcement such as instructor endorsement or habitual use. This emphasizes that student agency, rather than institutional influence, plays a greater role in shaping how learners perceive and use emerging technologies. Even with limited faculty encouragement (only 11.3%), the majority of students (96.9%) actively utilized ChatGPT and similar tools, reflecting a self-directed approach to digital learning. This aligns with SDG 4.4, which seeks to increase the skills of youth and adults relevant to ICT-driven education and employment, and demonstrates a growing culture of autonomous, technology-empowered learners.

In light of these findings, the following practical and policy implications are recommended:

1. **Faculty Development Programs.** Implement structured faculty training on integrating GAI tools into pedagogy through hands-on workshops, mentoring programs, and continuous professional development sessions. These sessions should cover instructional design, ethical awareness, and practical applications of GAI in lesson planning, assessment, and student feedback. This supports SDG 4.c, which highlights strengthening teacher competencies through ongoing professional training.
2. **Curricular Integration of Digital Ethics.** Embed digital ethics and AI literacy across courses, allowing students to engage critically with issues like plagiarism, bias, and information integrity. Teachers can include short modules, class debates, or scenario-based discussions to encourage students to reflect on responsible technology use, thereby promoting SDG Target 4.7, which advances education for sustainable development and global citizenship.
3. **Institutional Guidelines for Ethical AI Use.** Establish school-wide policies and frameworks that govern the ethical and productive use of GAI tools, ensuring they align with both institutional objectives and student learning behaviors. This may include setting standards for citing AI-generated content, ensuring transparency in AI-assisted work, and providing access to approved platforms to ensure equity and quality in digital learning.
4. **Student Reflective Practices.** Encourage reflective learning through digital portfolios, reflective journals, peer discussions, or essays on ethical AI use. These activities can help students connect their use of GAI tools with deeper critical thinking, creativity, and integrity in academic work. Reflection sessions may also be integrated into classroom discussions or e-learning platforms to sustain awareness of responsible AI engagement.

In conclusion, while students at Tagoloan Community College are actively and responsibly engaging with generative AI in their learning, institutions must shift from passive tolerance to proactive integration by designing ethical, student-centered, and pedagogically aligned frameworks. This transformation is essential for realizing SDG 4: Quality Education, ensuring that GAI use strengthens academic excellence, equity, and empowerment among learners and educators in a technology-driven world. To extend this study, future research could employ longitudinal or mixed-methods designs to track changes in perceptions and outcomes over time. Exploring faculty attitudes and institutional readiness through qualitative approaches may also provide a broader understanding of how policy, pedagogy, and innovation intersect in AI-enhanced education. Moreover, progress could be monitored using SDG 4 indicators, such as digital literacy rates, teacher training participation, and the integration of AI tools into the curriculum, ensuring that GAI adoption continues to promote inclusive, equitable, and sustainable learning opportunities for all.

5.0 Contributions of Authors

Author 1: conceptualization, proposal writing, data gathering, data analysis
Author 2: data gathering, data analysis

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7.0 Conflict of Interests

Not indicated.

8.0 Acknowledgment

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