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AI Adoption and Student Productivity in Higher Education: A Cross-Institutional Study

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ABSTRACT

This cross-institutional study investigates the impact of generative AI, specifically ChatGPT, on student productivity and behavioral intentions in higher education, comparing responses from Texas College (USA) and Kathmandu Model College (Nepal). Grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, this research explores how readiness, frequency of use, and

perceptions of productivity influence students' intentions to continue using AI. Data were collected from 507 undergraduate students across higher education institutions in the United States and Nepal and analyzed using descriptive statistics, reliability testing, and ordinal logistic regression. Results indicate that frequent AI users perceive higher academic productivity, while institutional affiliation had no significant effect. Readiness and perceived productivity emerged as strong predictors of continued AI use; however, some students expressed uncertainty about ethical and academic integrity concerns. The findings suggest that while AI tools like ChatGPT hold promise for enhancing academic efficiency and personalization in learning, a structured institutional framework and ethical guidance are essential to support the sustained and responsible integration of these tools into pedagogical practices.

Keywords: ChatGPT, Generative AI, Higher Education, Student Productivity, Behavioral Intention, UTAUT, Academic Integrity, Cross-Institutional Study.

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INTRODUCTION

As the world witnesses the artificial intelligence (AI) revolution, higher education is experiencing significant changes, with the advent of innovative tools that enhance learning, streamline academic tasks, and improve student engagement (Lampropoulos et al., 2025). Among these tools, ChatGPT has emerged as a widely used AI-powered assistant, providing students with real-time responses, content generation, and personalized tutoring (Ali et al., 2025). As institutions worldwide explore the integration of AI, it is essential to understand student adoption patterns, their perceptions of AI's effectiveness, and the impact on academic productivity (Vieriu et al., 2025).

Prior research has highlighted the potential of AI technologies to enhance student learning by reducing cognitive load and fostering self-directed learning (Zawacki-Richter et al., 2019). However, adoption rates and perceived benefits often vary based on institutional type, student demographics, and technological infrastructure (Selwyn, 2019). While numerous studies have examined AI's role in education, few have examined cross-institutional differences in ChatGPT adoption, particularly in developed and developing educational settings (Holmes et al., 2021). The integration of generative artificial intelligence (AI) into education has sparked significant discourse regarding its transformative potential and ethical

implications. AI-driven instructional frameworks, such as the 4PADAFE model, have been shown to enhance teaching strategies by structuring instructional planning, assessment, and personalized learning experiences (Ruiz-Rojas et al., 2023). Educators are increasingly recognizing the advantages of AI tools in enhancing student engagement and optimizing language instruction through automated feedback and assessment mechanisms (Kohnke et al., 2023). However, concerns persist regarding educators' readiness to implement AI, as many lack the necessary digital competencies to effectively integrate these technologies into their pedagogical practices (Kaplan-Rakowski et al., 2023). Additionally, while AI enhances accessibility and efficiency in education, it also raises ethical concerns about academic integrity, misinformation, and overreliance on AI-generated content (Tang, 2023). Scholars argue that the role of AI in education must be critically examined to prevent it from reinforcing existing biases and educational inequities (Williamson & Eynon, 2020). Although AI tools such as ChatGPT offer promising avenues for personalized learning and instructional efficiency, well-defined policies and educator training are paramount to ensure responsible and effective AI adoption in higher education (Adiguzel et al., 2023).

This study aims to investigate the relationship between ChatGPT adoption, perceived academic productivity, and behavioral intention across two distinct institutional contexts: Texas College in the United States and Kathmandu Model College (KMC) in Nepal. Grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT) framework (Venkatesh et al., 2003), this research explores the effects of performance expectancy, effort expectancy, social influence, and facilitating conditions on students' behavioral intentions. Specifically, the study addresses the following research questions:

1. How does the frequency of ChatGPT usage among college students influence their perceived academic productivity across different institutional contexts?
2. What are the key predictors of students' behavioral intention to continue using ChatGPT in higher education settings?
3. To what extent does institutional type (Texas College vs. KMC) moderate the relationship between AI adoption and students' academic performance perceptions?

LITERATURE REVIEW

Integrating generative AI tools into higher education has sparked considerable debate regarding its potential benefits and challenges. Among AI tools, ChatGPT, a powerful chatbot developed by OpenAI, has gained prominence for its ability to generate human-like text, offering applications in academic settings. This literature review examines the adoption of ChatGPT among students, its impact on academic productivity, and the ethical considerations that arise from its use.

Adoption of ChatGPT in Higher Education

The rapid adoption of ChatGPT in educational contexts is noteworthy. A previous study revealed that 58% of American students acknowledged using ChatGPT, with 38% admitting to using it without teacher consent, highlighting challenges in enforcing bans (Shi et al., 2025). This surge is attributed to ChatGPT's ability to provide instant assistance with essay drafting, generating ideas, and simplifying complex topics (OpenAI, 2023). Students have reported that ChatGPT helps them save time and improve the quality of their work. However, the extent of ChatGPT's adoption varies across disciplines. Students in science-related fields are more inclined to use AI tools compared to their counterparts in social sciences and humanities. This disparity may be due to the technical nature of scientific subjects, in which AI can assist with problem-solving and data analysis.

Impact on Academic Productivity

ChatGPT's influence on academic productivity is multifaceted. Proponents argue that it enhances learning efficiency by providing quick access to information and assisting in the comprehension of complex subjects (Ravšelj et al., 2025). For instance, students have used ChatGPT to convert readings into podcasts, allowing them to engage with course material more flexibly (Ravšelj et al., 2025). ChatGPT serves as a personalized tutor, offering explanations and feedback that can supplement traditional learning methods (Ravšelj et al., 2025). This personalized assistance can be particularly beneficial for students transitioning between disciplines, as it helps bridge knowledge gaps and facilitates a smoother learning curve.

Ethical Considerations and Academic Integrity

The widespread use of ChatGPT has raised concerns about academic integrity. Universities have reported an increase in cases where students use AI tools to complete assignments, sometimes without proper attribution (Sharkey, 2025). This trend has prompted institutions to reassess their assessment methods and explore strategies to maintain academic standards. Some universities have attempted to counteract AI-assisted cheating by reverting to traditional assessment methods, such as pen-and-paper exams (Sharkey, 2025). However, experts argue that such measures may be futile in the long run, as AI technology continues to evolve and become more integrated into daily life. Instead, there is a growing consensus that educators should focus on teaching students how to use AI tools responsibly and ethically (Sharkey, 2025).

Pedagogical Implications

The integration of ChatGPT into higher education necessitates a reevaluation of pedagogical approaches. Educators are encouraged to incorporate AI literacy into the curriculum, ensuring that students understand both the capabilities and

limitations of tools like ChatGPT (Ravšelj et al., 2025). This includes fostering critical thinking skills that enable students to assess the reliability of AI-generated information.

The integration of generative artificial intelligence (AI) in education has introduced new pedagogical possibilities and challenges. According to Ruiz-Rojas et al. (2023), AI-driven instructional design matrices, such as the 4PADAFE framework, enhance teaching strategies by structuring learning objectives, instructional planning, and assessment methodologies. These AI tools enable educators to create personalized, adaptive learning experiences tailored to students' unique needs, fostering engagement and motivation. Similarly, Kohnke, Moorhouse, and Zou (2023) emphasize that generative AI tools offer significant advantages for language instruction, enabling instructors to use AI-driven feedback and automated assessment to optimize learning outcomes. However, their study also identifies a gap in AI-specific digital competencies among educators, underscoring the need for professional development programs that equip teachers with the necessary skills to integrate AI tools effectively. These findings align with historical perspectives on AI in education, where Williamson and Eynon (2020) discuss the evolving role of AI from traditional automated tutoring systems to dynamic, data-driven instructional tools that provide real-time learning interventions.

Despite these advantages, concerns about AI's ethical implications and potential risks to academic integrity persist. Adiguzel, Kaya, and Cansu (2023) argue that while AI technologies such as ChatGPT enhance student engagement and facilitate personalized learning, they also introduce risks, including misinformation, biases in AI-generated content, and overreliance on technology for academic tasks. Similarly, Kaplan-Rakowski et al. (2023) suggest that educators' perceptions of AI play a crucial role in its adoption, with frequent users exhibiting more positive attitudes toward the pedagogical benefits of AI. However, they also caution against the unchecked implementation of AI, citing challenges in balancing AI-assisted learning with traditional critical thinking and problem-solving skills. Furthermore, Tang (2023) raises concerns about AI-generated content in scholarly writing, arguing that academic journals should establish clear policies on the use of AI-generated material to maintain research integrity. These studies collectively highlight the dual nature of AI in education: while it offers transformative potential in personalized learning and instructional efficiency, it also necessitates a structured approach to mitigate ethical risks and ensure responsible usage.

Additionally, some institutions have embraced AI by integrating it into their educational frameworks. For example, the California State University system introduced ChatGPT Edu to equip students with essential AI skills and enhance learning experiences (OpenAI, 2024). Such initiatives aim to prepare students for a workforce that increasingly relies on AI technologies.

Challenges and Future Directions

Despite the benefits, challenges persist in the adoption of ChatGPT. Concerns about data privacy, the potential for AI to perpetuate biases, and the accuracy of AI-generated content are ongoing issues that require attention (Ravšelj et al., 2025). Furthermore, the overreliance on AI tools may impede the development of independent critical thinking skills among students.

Future research should focus on developing guidelines for the ethical use of AI in education, exploring the long-term effects of AI on learning outcomes, and ensuring that AI tools are accessible and beneficial to all students, regardless of their background or field of study. ChatGPT has undeniably impacted higher education by offering new avenues for learning and productivity. Its adoption reflects a shift towards integrating advanced technologies into academic practices. However, this integration comes with ethical and pedagogical challenges that educators and institutions must address to harness the full potential of AI in education.

RESEARCH METHOD

This study employed a cross-sectional survey research design, a widely used method in the social sciences that collects data from a population at a single point in time (Creswell & Creswell, 2017). A cross-sectional survey is particularly suitable for understanding attitudes, behaviors, and perceptions within a defined group, allowing researchers to analyze patterns, associations, and differences between subgroups. This design is characterized by its efficiency, cost-effectiveness, and ability to capture a snapshot of prevailing trends.

For this study, a structured online questionnaire was administered to students at Texas College and Kathmandu Model College in Nepal to assess their use of ChatGPT, perceived academic productivity, and behavioral intentions. The survey included both closed-ended and Likert scale questions to ensure quantitative measurability of key constructs. The instrument was adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT) framework (Venkatesh et al., 2003), incorporating variables such as performance expectancy, effort expectancy, social influence, and facilitating conditions. The sample was selected using stratified random sampling, ensuring representation across different academic disciplines and levels of study.

Data analysis employed descriptive statistics, hypothesis testing, and ordinal logistic regression modeling to investigate the relationships between AI adoption, productivity perceptions, and behavioral intentions.

RESULTS

Demographic characteristics of respondents.

Most of the students were between the ages of 18 to 24 (92.7%) and were studying in their own country (88.8%). The use of AI was more prevalent in KMC (96.8%) than in Texas College (39.7%). Likewise, students from KMC use generative AI, such as ChatGPT, more frequently than students at Texas College (see Table 1).

Table 1: Demographic Characteristics of Research Participants

	KMC (n=220)	Texas college (n=287)	Overall (n=507)
Gender			
Man	106 (48.2%)	182 (63.4%)	288 (56.8%)
Non-binary	3 (1.4%)	4 (1.4%)	7 (1.4%)
Woman	111 (50.5%)	101 (35.2%)	212 (41.8%)
Age			
18 to 24	218 (99.1%)	252 (87.8%)	470 (92.7%)
25 to 34	1 (0.45%)	20 (7.0%)	21 (4.1%)
35 and above	1 (0.45%)	15 (5.2%)	16 (3.2%)
Field			
Business and Management	141 (64.1%)	85 (29.6%)	226 (44.6%)
Health Sciences	14 (6.4%)	41 (14.3%)	55 (10.8%)
Humanities	6 (2.7%)	14 (4.9%)	20 (3.9%)
Social Sciences	6 (2.7%)	20 (7.0%)	26 (5.1%)
STEM & Engineering	41 (18.6%)	28 (9.8%)	69 (13.6%)
Other	12 (5.5%)	99 (34.5%)	111 (21.9%)
Education			
Mean (SD)	12.4 (1.75)	12.8 (1.69)	12.6 (1.73)
Median [Min, Max]	12.0 [10.0, 18.0]	12.0 [10.0, 20.0]	12.0 [10.0, 20.0]
Internation student			
No	207 (94.1%)	243 (84.7%)	450 (88.8%)

Yes	13 (5.9%)	36 (12.5%)	49 (9.7%)
Missing	0 (0%)	8 (2.8%)	8 (1.6%)
Programs			
college/university	158 (71.8%)	265 (92.3%)	423 (83.4%)
community college	54 (24.5%)	18 (6.3%)	72 (14.2%)
Other	8 (3.6%)	4 (1.4%)	12 (2.4%)
AI use			
No	7 (3.2%)	173 (60.3%)	180 (35.5%)
Yes	213 (96.8%)	114 (39.7%)	327 (64.5%)
Frequency use			
Always	77 (35.0%)	12 (4.2%)	89 (17.6%)
often	121 (55.0%)	60 (20.9%)	181 (35.7%)
Rarely	15 (6.8%)	42 (14.6%)	57 (11.2%)
Never	7 (3.2%)	173 (60.3%)	180 (35.5%)

Table 2: Participants' Views on Productivity, Readiness, and Intention of Using AI

Items	SA	A	N	D	SD
Productivity					
Using AI increases your chances of achieving important things in your studies	85	209	152	29	24
Using AI increases your productivity in your studies	65	189	182	32	32
Using AI helps you get tasks and projects done faster in your studies	109	211	133	24	22
I believe that AI is useful in my studies	114	200	139	20	32
Readiness					
AI is compatible with the technology I use	85	226	146	25	17
I have necessary knowledge to use AI	73	218	164	28	17
I have a resource necessary to use AI	75	213	173	26	18
Intention					
I plan to continue to use AI frequently	45	156	211	57	31
I intend to continue using AI in the future	59	207	187	27	26
I will always try to use AI in my studies	48	156	203	63	31
I must use AI	31	107	207	93	63

Notes: SA= Strongly Agree; A= Agree; N= Neither agree nor disagree; D= Disagree; and SD Strongly Disagree.

Readiness, intention to use, and Productivity of Generative AI

An analysis was conducted to understand the preparedness and intentions of students to use AI and how they perceived its usefulness in improving and assisting their studies. It shows that most students view AI as an important tool to achieve their academic goals, improve their productivity in studies, and help them accomplish their projects and tasks more quickly and effectively. Most students were also confident that they possessed the required knowledge and resources to utilize AI (see Table 2).

Reliability Test

Table 3 presents the Cronbach's alpha of latent variables such as productivity, readiness, and intent to use AI, which surpasses the threshold of 0.7, indicating items consistently measure the same underlying construct and that the measurement is reliable.

Table 3: Reliability Test

Construct	Items	Cronbach's
Productivity	Using AI increases your chances of achieving important things in your studies	0.93
	Using AI increases your productivity in your studies	
	Using AI helps you get tasks and projects done faster in your studies	
	I believe that AI is useful in my studies	
Readiness	AI is compatible with the technology I use	0.89
	I have necessary knowledge to use AI	
	I have a resource necessary to use AI	
Intent	I plan to continue to use AI frequently	0.86
	I intend to continue using AI in the future	
	I will always try to use AI in my studies	
	I must use AI	

Direct and indirect effects of readiness and productivity on students' intention to use generative AI

A path analysis was conducted to examine the effect of AI productivity on the intention to use it. The results indicate a direct and significant correlation between readiness and the productivity of AI. Likewise, productivity and readiness have a combined effect, showing a significant association with intention to use AI (see Table 4). The indirect effect of readiness and productivity is positive and significant, indicating that readiness influences intention to use AI by first increasing productivity, which in turn increases the intention to use AI (see Figure 1).

Table 4: Direct and indirect effects of readiness and productivity on intention to use AI

	Coefficient	Std. error	Z-value	P-value
Direct effect				
Readiness ▼ Productivity	0.743	0.041	18.28	<0.01
Productivity ▼ Intention	0.437	0.065	6.780	<0.01
Readiness ▼ Intention	0.248	0.067	3.67	<0.01
Indirect effect				
Readiness * Productivity ▼ Intention	0.325	0.049	6.578	<0.01

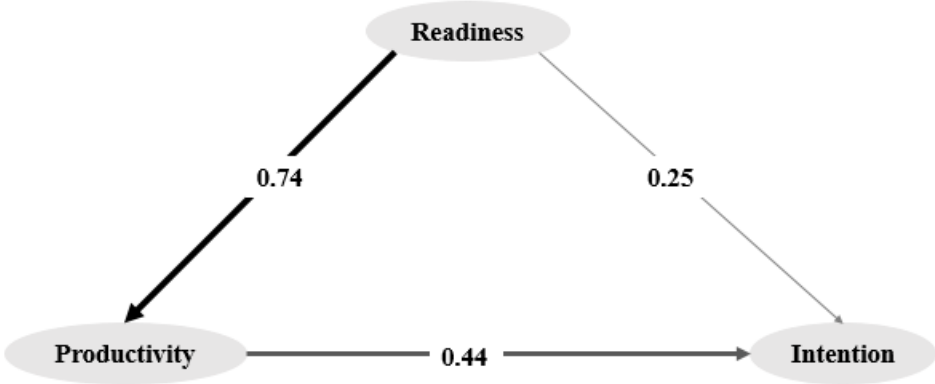


Figure 1: Effect of readiness and productivity on intention to use AI

Factors affecting Students' productivity perception

The dependent variable of ordinal logistic regression is perceived productivity in its own studies, while the independent variables include frequency of AI use and institutional affiliation. There was a significant direct association between students' productivity perception and frequency of AI use. The results indicated that as the use of AI increases, the odds of students perceiving AI improving their productivity in their studies also increase. However, the institutional affiliation did not have a significant relationship with students' productivity perception. The result of the ordinal logistic regression analysis is presented in Table 5.

Table 5: Effect of frequency and institution on students' productivity perception

<i>Predictors</i>	Student's productivity perception		
	<i>Odds Ratios</i>	<i>CI</i>	<i>p</i>
Strongly agree Agree	0.31	0.20 – 0.47	<0.001
Agree Neither agree nor disagree	2.95	1.92 – 4.56	<0.001
Neither agree nor disagree Disagree	28.63	16.98 – 48.27	<0.001
Disagree Strongly disagree	63.31	35.46 – 113.05	<0.001
Frequency of use: Never	12.14	6.25 – 23.58	<0.001
Frequency of use: Rarely	2.23	1.09 – 4.57	0.029
Frequency of use: often	1.58	0.96 – 2.60	0.069
College: Texas College	0.83	0.52 – 1.32	0.428
Observations	500		
R ² Nagelkerke	0.228		

Factors affecting the intention to use AI in the study

Ordinal logistic regression was used to examine the key predictors of behavioral intention to continue using AI in educational settings. The dependent variable in this study is the intention to continue using generative AI, such as ChatGPT. The independent variables include readiness to use AI in terms of knowledge, technology, and other resources, perceived productivity improvement in studying, AI use frequency, gender, and field of study. A significant association was found between the intention to use AI for study and factors such as readiness, productivity, and frequency of AI use. The results show that students who use AI frequently have higher odds of continuing to use it in the future as well. Similarly, students who were confident that they had the necessary knowledge, technology, and other resources to use AI had higher odds of continuing to use it. Likewise, students who perceived that AI improves their productivity were also more likely to continue using AI. However, the gender and field of study did not have a statistically significant relationship with the intention to continue using AI in education settings (see Table 6).

Table 6: Factors affecting the intention to use AI in the study

<i>Predictors</i>	Likelihood to continue to use AI for study		
	<i>Odds Ratios</i>	<i>CI</i>	<i>p</i>
Strongly agree Agree	0.35	0.22 – 0.58	<0.001
Agree Neither agree nor disagree	3.71	2.26 – 6.09	<0.001
Neither agree nor disagree Disagree	50.07	27.41 – 91.47	<0.001
Disagree Strongly disagree	291.26	139.49 – 608.15	<0.001
Readiness: Low	13.68	5.89 – 31.78	<0.001
Readiness: Medium	2.07	1.37 – 3.14	0.001
Productivity: Low	14.80	6.23 – 35.18	<0.001
Productivity: Medium	4.90	3.03 – 7.93	<0.001
Frequency: Never	1.64	0.91 – 2.97	0.099
Frequency: Often	1.70	1.03 – 2.81	0.036
Frequency: Rarely	3.78	1.89 – 7.55	<0.001
Gender: Non-binary	0.33	0.08 – 1.36	0.125
Gender: Woman	0.85	0.60 – 1.21	0.368
Field: Health Sciences	0.95	0.53 – 1.72	0.870
Field: Humanities	1.55	0.59 – 4.06	0.370
Field: Social Sciences	1.00	0.45 – 2.20	0.996
Field: STEM & Engineering	1.29	0.76 – 2.21	0.348
Field: Other	0.88	0.55 – 1.41	0.602
Observations	491		
R ² Nagelkerke	0.445		

DISCUSSION AND CONCLUSIONS

The study indicated that the institutional affiliation had no significant impact on perceived improvement in academic productivity. However, the frequency of AI use has a direct and significant effect on perceived improvements in academic productivity. Furthermore, the study revealed that key variables influencing the intention to continue using AI include AI use frequency, preparedness to use AI, and perceived productivity improvements. These findings are consistent with previous studies. Specifically, Tang et al. (2025) supported the claim that consistent use can increase the inclination towards generative AI, while Valle et al. (2024) found that performance expectancy, perceived knowledge, and attitude towards using the AI significantly influence behavioral intentions. In addition, Path analysis indicated that preparedness to use AI indirectly affects the intention of to use AI by influencing perceived productivity.

Most students in the study indicated that AI can help them achieve their academic goals. These findings are consistent with several studies (e.g., Luo & Hsiao-Chin, 2023; Dabingaya, 2022; Sari, 2024) that show that integrating AI into education can improve students' performance and engagement by providing individually tailored learning experiences. The practical benefits of generative AI tools such as ChatGPT have also been recognized in contexts like lesson planning and peer feedback (Gamlem et al., 2025; Zapata et al., 2025). However, the use of generative AI in education has been met with controversy, particularly regarding academic integrity and the risk of AI-assisted cheating (Bin-Nashwan et al., 2023; The Times, 2025). Further concerns include the generation of inaccurate content, potential intellectual property violations, and the dissemination of misinformation or deepfakes (Holmes et al., 2023; Mochizuki et al., 2025).

These challenges are amplified by the absence of clear institutional guidelines and ethical frameworks. Despite having sufficient resources, knowledge, and technological readiness, students may become discouraged or hesitant to fully integrate AI into their academic practices. This hesitancy is echoed in faculty experiences in politically complex contexts, such as Palestine, where educators expressed both optimism and concern regarding AI's impact on pedagogy (Hamamra et al., 2025). Similarly, cultural and contextual nuances significantly shape AI adoption, as demonstrated in cross-cultural comparisons of teacher education in Turkey and the UAE (Konca et al., 2025).

Although students have fewer doubts about AI's potential to support goal achievement and academic productivity, actual usage remains limited due to institutional ambiguity. In this post-digital era, education systems must adopt a holistic, systems-oriented approach to AI integration that recognizes the interdependence of institutional components and prioritizes ethical, inclusive, and student-centered innovation (Sharples, 2025). Establishing coherent policies and pedagogical strategies grounded in professional development, institutional

preparedness, and a commitment to equity is essential for fostering trust, engagement, and sustainable adoption of AI in higher education.

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