

Correlates of ChatGPT use intention among freshmen health sciences students

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ABSTRACT

The proliferation of ChatGPT in educational contexts and incorporating such technology into students' academic lives raise intriguing questions. Understanding the factors influencing the intention to adopt this novel technology is necessary for better integration and utilization. This study determined the correlates of intention to use ChatGPT among undergraduate health sciences students. Data for this correlational study was gathered through an online survey and was answered by 153 students of health sciences programs at a private school in the Philippines. Spearman's correlational analysis demonstrated that perceived credibility, perceived usefulness, perceived social influence, attitude, and perceived ease of use significantly correlated with intention to use ChatGPT among health sciences students. These findings are crucial for educational practitioners looking for ways to enhance students' learning outcomes and experiences. By leveraging technology like ChatGPT, they can potentially enrich educational experiences and better prepare students for the advanced technological landscape of healthcare, ultimately improving the quality of health sciences education.

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1. INTRODUCTION

In recent years, conversational generative artificial intelligence (AI) systems have revolutionized how individuals interact with technology [1]. Generative AI encompasses AI models capable of generating new data based on learned patterns from existing text, images, and music data that employ deep learning and neural networks to produce outputs resembling human-created content [2]–[4]. Its most significant impact is in academic research, teaching, and learning [5]. Notably, ChatGPT or Chat Generative Pre-Trained Transformer stands out as a promising tool for facilitating natural language conversations with users [2], [6]. Its potential applications in educational settings are vast and multifaceted. However, the growing popularity of ChatGPT in educational settings begs interesting concerns about student acceptability and adoption [1], [7]. Undergraduates are a perfect cohort to investigate ChatGPT's application in educational settings since they are digital natives with a built-in affinity for technology [8].

As AI technologies turn out to be increasingly integrated into everyday life and academic environments [9], identifying and understanding the factors influencing their adoption among specific user groups, such as health sciences students, becomes imperative for better integration and utilization. ChatGPT arguably positively

influences teaching and learning in educational settings [10]. Using such technology has been seen to boost academic performance through increased motivation for learning [11]. This insight can guide effective integration strategies of ChatGPT in education [12]. Nonetheless, various factors probably play a role in students' decisions to adopt and use ChatGPT in their academic lives. A conceptual framework for understanding technology adoption is provided by the technology acceptance model (TAM). The model suggests that people's perceptions of the ease and utility of technology influence their attitudes toward using it [13]. Items on perceived credibility and social influence were added to fit the model with ChatGPT [12]. In the context of undergraduate education, where technology plays an ever-expanding role in learning and academic support [14], [15], understanding the interplay between certain factors and the intention to use ChatGPT is essential for those seeking to leverage its potential benefits in enhancing learning experiences and academic outcomes.

Previous research studies conducted elsewhere and in neighboring Southeast Asian countries like Thailand [16], [17], Malaysia [18], Vietnam [19], and in the local setting [20], [21] provided insights into the factors influencing the adoption of AI technologies and technological innovations in educational contexts. Yet, a dearth of research focuses on health sciences undergraduate students' intention to adopt conversational AI systems like ChatGPT. This specific cohort may have different perceptions and needs from those of other demographics. Moreover, prior research on ChatGPT adoption has predominantly focused on the general university or higher education students, overlooking undergraduate students' unique characteristics and needs in health sciences programs. Due to the complexity of health science education, ChatGPT is a game-changer, proving beneficial with its use to enhance learning outcomes and revolutionize the teaching and application of medical knowledge [22]. Understanding how ChatGPT fits into this educational landscape is crucial, given the unique nature of health sciences education, which relies on evidence-based practice, critical thinking, and effective communication [23]–[25]. This understanding is necessary to fully maximize its effectiveness and integration into the educational environment.

Meanwhile, a study indicated significant variation in ChatGPT usage according to country of residence [26]. In the Philippines, Filipinos' ability to speak English and familiarity and acquaintance with technological advancements greatly enhance their ability to use technology effectively [20]. By conducting a local study on this demographic, the study fills a crucial gap in understanding technology adoption patterns among future healthcare professionals at the onset of their academic journey. This study addresses a noteworthy gap in the literature by concentrating on first-year or freshmen students, as they represent a critical juncture in their academic journeys where integrating innovative educational technologies can profoundly impact professional development and learning outcomes.

Against this backdrop, this study aims to contribute to a better and broader understanding of technology adoption in educational contexts. It can provide actionable insights for teachers, technology innovators, curriculum planners, and educational policymakers seeking to promote the effective integration of AI-driven tools into undergraduate curricula. This possible technology integration aims to enhance student engagement, learning experiences, and overall academic success in the health sciences. This study investigates the factors influencing freshmen health sciences undergraduate students' intention to use ChatGPT, focusing on perceived usefulness, ease of use, credibility, social influence, and attitude. By elucidating the factors that influence students' intention to use ChatGPT, this study aims to contribute to the increasing research and body of literature on technology adoption in education in the field of health sciences.

2. METHOD

2.1. Research design, respondents, and data collection

This research employed a descriptive-correlational, cross-sectional approach. To determine the adequate size for a correlation study, a power analysis was conducted using G*Power software [27]. Given certain parameters (an alpha of 0.05, a power of 0.80, and a medium effect size of 0.3 for a two-tailed test), the required sample size was 84. For this survey, 153 respondents satisfied the required sample size for a correlational study. Data for this study were gathered through an online survey tool via Google Forms from August to September 2023 among undergraduate freshmen or first-year students of health sciences courses at a private college in Mindanao, Philippines. Relevant administrative clearance for the conduct of research was obtained before data collection. Department chairpersons facilitated the distribution of the survey link through social media (Facebook groups), ensuring voluntary participation and avoiding undue influence. The survey link included electronic informed consent from participants, ensuring anonymity or confidentiality to protect privacy. The survey typically took about 5 to 10 minutes to finish.

2.2. Instruments

An adopted survey instrument was used in this investigation. The instrument had 18 items, three for each of the six constructs [12]. For this research, items were answerable on a 5-point scale ranging from strongly disagree (1) to strongly agree (5) for perceived usefulness, social influence, credibility, and attitude.

For perceived ease of use, the scale ranged from very difficult (1) to very easy (5), and for behavioral intention, very unlikely (1) to very likely (5). The authors of the instrument reported acceptable thresholds for reliability. For this survey, the following Cronbach’s alpha coefficients were obtained: perceived usefulness=0.863, perceived ease of use=0.897, attitude=0.932, perceived credibility=0.940, perceived social influence =0.875, and perceived behavioral control=0.899.

2.3. Data analysis

The data for this survey were analyzed using IBM SPSS version 26. Categorical data were described using frequency and percentage, whereas interval data were described using mean and standard deviation. Spearman rho correlation was used to test for behavioral intention correlates because data normality assumptions were unmet. Moreover, the result of this research was considered significant if the p-value was less than 0.05 alpha.

3. RESULTS

Table 1 shows that the average age of respondents was 19 years old. The majority were taking Bachelor of Science in Nursing (51.6%), females (84.3%), single (98%), with lower income status (51%), residing in towns (62.1%), reported somewhat strong internet connectivity (62.7%), and good digital competence (83.7%). Table 2 displays a moderate (38.6%) to high (39.2%) perceived usefulness, moderate (41.2%) to high (41.8%) perceived ease of use, and moderate (41.8%) to high (34.6%) social influence to use ChatGPT. The majority had moderate (45.1%) perceived credibility, a positive attitude (49.7%), and a moderate (49.7%) behavioral intention to use ChatGPT. Table 3 shows that perceived credibility (rho=0.791, p=0.000), perceived social influence (rho=0.759, p=0.000), attitude toward (rho=0.661, p=0.000), perceived usefulness (rho=0.650, p=0.000), and perceived ease of use (rho=0.559, p=0.000) were significantly correlated with intention to use ChatGPT.

Table 1. Profile of participants (n=153)

Profile	Values	
	M	SD
Age	19.25	3.64
	f	%
Course:		
Nursing	79	51.6
Medical technology	34	22.2
Midwifery	21	13.7
Pharmacy	11	7.2
Radiology technician	8	5.2
Sex:		
Male	24	15.7
Female	129	84.3
Marital status:		
Single	150	98.0
Married	3	2.0
Income status:		
Lower	78	51.0
Middle	74	48.4
High	1	.7
Residence:		
Town	95	62.1
City	58	37.9
Internet connectivity:		
Poor	46	30.1
Somewhat strong	96	62.7
Strong	11	7.2
Digital competence:		
Poor	16	10.5
Good	128	83.7
Excellent	9	5.9

Table 2. Descriptives of major variables

Variables	Low/negative		Moderate		High/positive		M	SD
	f	%	f	%	f	%		
Perceived usefulness	34	22.2	59	38.6	60	39.2	3.14	.93
Perceived ease of use	26	17.0	63	41.2	64	41.8	3.26	.94
Attitude	33	21.6	76	49.7	44	28.8	3.02	.91
Perceived credibility	37	24.2	69	45.1	47	30.7	3.03	.91
Perceived social influence	36	23.5	64	41.8	53	34.6	3.03	.92
Behavioral intention	40	26.1	76	49.7	37	24.2	2.95	.89

Table 3. Bivariate analysis

Variables	Spearman rho	p-value
Perceived credibility	.791	.000
Perceived social influence	.759	.000
Attitude	.661	.000
Perceived usefulness	.650	.000
Perceived ease of use	.559	.000

Note: significant if $p < 0.05$

4. DISCUSSION

This study examined the factors correlated with the intention to use ChatGPT among health sciences undergraduate students in the Philippines. While previous studies explored the factors influencing the adoption of AI technologies in education, limited research specifically examines freshmen health sciences undergraduate students' intention to adopt conversational AI systems like ChatGPT. This study found that perceived credibility, perceived usefulness, perceived social influence, attitude, and perceived ease of use were significantly correlated with intention to use ChatGPT.

Nearly half of this study's participants had moderate intention to use ChatGPT. Another research conducted among university students in the Philippines found a high inclination to utilize generative AI technologies within higher education [21]. Also, a little over half of the participants in a multicounty study involving university students from Egypt, Iraq, Jordan, Kuwait, and Lebanon indicated using ChatGPT [26]. Other studies conducted elsewhere reported that students had a positive perception and view of the educational application and use of ChatGPT [28], [29]. Given the potential of students using ChatGPT in health science education, educators may need to address any misconceptions or reservations students have about ChatGPT. It is also essential for educators and curriculum developers in the health sciences to carefully design curricula and instructional strategies that incorporate ChatGPT as an additional resource rather than a substitute for human guidance [22].

The adoption of technology, particularly AI-driven systems, is influenced by myriad factors ranging from perceived usability to social influence. The results of this research are relatively consistent with some prior studies and support the variables identified in the extended TAM earlier identified by Yilmaz *et al.* [12]. The findings of this study indicated that users' intention to use such systems was significantly influenced by their perceptions of the legitimacy of technology, particularly among health sciences students. Notably, perceived credibility was the most significant factor in the students' intention to use ChatGPT. Students were more likely to trust and engage with AI systems they perceive as credible, reliable, and accurate in providing information and assistance. Perceived trust was also a significant driver of ChatGPT's behavioral intentions in Ghana's higher education [30]. Higher education teachers also expressed reliability, accuracy, and ethical and pedagogical concerns about ChatGPT use [8], [31]. Considering the dynamic nature of healthcare information, which constantly evolves with new research and treatment protocols, ChatGPT's reliance on pre-existing data may not always reflect the latest findings, particularly in fast-moving fields or advanced treatments [22]. It has the potential to produce inaccurate or deceptive content, posing risks, particularly in critical areas like public health [4]. Students must prioritize verifying the accuracy and currency of information generated by this technology. Students in Hong Kong also expressed concerns that while generative AI can swiftly generate natural and human-like responses, their accuracy may not always be assured [32]. Educators may also proactively provide clear policies and guidelines that outline the ethical, appropriate, and responsible use of AI tools in education [8], [19]. Additionally, social influence emerges as a significant determinant of technology adoption, wherein individuals are influenced by the attitudes, opinions, and behaviors of their peers and social networks. Understanding how the perceptions and behaviors of peers and influential figures shape freshmen health sciences undergraduate students' intentions to use ChatGPT can provide valuable insights into the dynamics of technology adoption in educational settings.

Moreover, students' perceived usefulness of the technology plays a pivotal role in its adoption. If students perceive ChatGPT as a valuable tool that enhances their learning experience, they are more likely to embrace and utilize it in their academic pursuits. Similarly, a study of university students in Saudia Arabia found that performance expectancy, or if students view ChatGPT as useful, it would foster a favorable intention to use it [33]. Likewise, performance expectancy was found to be associated with behavioral intention to use ChatGPT among students and ChatGPT users in Malaysia [18], [34], and university students in Poland [35], Ghana [30], Spain [36], Saudi Arabia [37], Jordan [28], India [38], and Philippines [20]. The perceived usefulness of the technology also successfully predicted ChatGPT usage among university students in research conducted in Thailand [16]. The continued intention to use ChatGPT among college students in the United States was also influenced by its perceived usefulness [39]. Based on the findings of this present investigation, it is vital to demonstrate the practical value and benefits of ChatGPT to students. The adoption of ChatGPT

can be further encouraged by providing instructions and tools to enable students to integrate it into their learning processes in an ethical and efficient manner.

Additionally, this study found that social influence was correlated with the intention to use ChatGPT. Social influence was also considered to likely influence ChatGPT use intention among Malaysian students and ChatGPT users [18], [34] and among Arab [37], United Arab Emirates [40], and Ghanaian students [30]. Social influence emerges as a significant determinant of technology adoption, wherein individuals are influenced by the attitudes, opinions, and behaviors of their peers and social networks. When a new technology emerges, individuals frequently turn to their social circles to determine whether they should embrace it or not [6]. This finding is necessary to understand how the perceptions and behaviors of peers and influential figures, such as their teachers, shape students' intentions to use ChatGPT. It also provides valuable insights into the forces that shape technology adoption in school or academic settings.

Furthermore, attitude towards technology and its ease of use positively influenced ChatGPT adoption intention decisions in this study. A positive attitude towards ChatGPT, coupled with the perception of it being user-friendly and easy to navigate, was likely to foster greater acceptance and utilization among students. A study involving five countries demonstrated a positive attitude towards ChatGPT [26]. Similarly, attitude played a crucial role in determining the intention to use it for writing purposes among doctoral students in China [41]. Also, the attitude of higher education students in Thailand [17] and Jordan [28] influenced the intention of adoption of ChatGPT. ChatGPT offers customized assistance and feedback, aligning perfectly with individual students' learning styles and requirements, ultimately helping students conquer obstacles and meet their educational goals [33]. Perceived humanness of technology significantly accounts for the usage of ChatGPT [16]. These personalized and adaptive learning capabilities can create an encouraging stance toward its use.

Meanwhile, the perception of its user-friendliness, effort expectancy, or ease of use also influenced the intention to adopt and use ChatGPT in the higher education context in Vietnam [19], India [38], United Arab Emirates [40], and Saudi Arabia [37] and among students and ChatGPT users in Malaysia [18], [34]. Also, the intention to continually use ChatGPT among college students in the United States was influenced by its perceived ease of use [39]. Those intending to integrate educational technology to enhance teaching and learning may focus on improving its ease of use to encourage widespread acceptance and integration into health science education.

This study has limitations and disadvantages. First, the cross-sectional design limits the ability to establish causality or determine changes over some time, offering only a glimpse of relationships. Additionally, focusing solely on freshmen within one institution hinders the generalizability of findings to broader populations or different academic levels. While this research involves several health sciences courses, there was predominance among nursing samples, and this paper did not determine variation between these courses. Moreover, reliance on self-reported data for measuring intention to use ChatGPT introduces the potential for response bias and lacks objective validation. Furthermore, this study overlooked contextual factors, such as familiarity with AI chatbots, cultural nuances, and factors, such as perceived privacy concerns and ethical issues that could influence the intention to use ChatGPT among Filipino students.

5. CONCLUSION

The adoption of technology, especially AI-driven systems, is influenced by a multitude of factors. This study highlights that those students who think ChatGPT is credible, perceive ChatGPT as useful, believe that others should use it, hold a positive attitude towards it, and find it easy to use are more inclined to use ChatGPT. These factors can significantly impact students' decisions regarding technology adoption in their education and learning. Moreover, these results underscore the importance of considering user perceptions, such as the practicality of the educational technology and its reliability, when assessing conversational AI technologies like ChatGPT adoption in health sciences education. The valuable insights derived from this research may be utilized by curriculum planners, academics, and education professionals in their efforts to achieve a balanced integration of AI-driven innovation and human expertise. This involves incorporating ChatGPT or conversational AI systems as support tools in educational or healthcare settings. Such bold moves and integration may enrich learning experiences and prepare students for the technologically advanced landscape of healthcare education. Also, creating clear guidelines and offering appropriate training may be necessary to help students responsibly use and integrate AI technology into their educational journey. Additionally, future researchers can address the limitations of the present study by conducting research involving longitudinal designs, diverse sample inclusion, objective outcome measures, better research models and statistical analyses, and comprehensive contextual examination, which could enhance the robustness and applicability of the study's findings.

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