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Main factors driving the use of ChatGPT by undergraduate students: An exploratory and preliminary study in Peru

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Abstract

The COVID-19 pandemic impacted various sectors due to its aggressive emergence. The university sector of Peruvian education was undoubtedly affected significantly. Mainly, the lack of good capacity for technological adaptability increased the problem at a time when adaptability capacity in Peruvian education was not very good. This situation threatened the quality of education, as it jeopardizes the quality of the Peruvian future professionals. In this context, digital tools are becoming more significant and bringing more opportunities for students to enhance their learning process. Remarkably, ChatGPT is quickly increasing its presence in the academic ecosystem. Therefore, it is critical to understand the main factors that lead students to continue using this digital tool. This study assesses the impact of the primary adoption factors of ChatGPT by undergraduate Peruvian students. This research used the Stimulus-Organism-Response (SOR) framework to analyze these findings with a total of 108 observations, which were collected online, and structural equation modeling was used as the analysis technique. The results demonstrated that five factors can explain users' intention to use ChatGPT: writing capacity, variety of information, perceived usefulness, and perceived ethical issues. The theoretical and practical implications of this study are discussed.

Keywords: ChatGPT, Education Quality, SOR model, Intention to Use, Artificial Intelligence

Introduction

In recent years, the world has experienced significant changes due to the COVID-19 pandemic. This phenomenon has substantially impacted various sectors, including universities (Broom, 2022). Universities worldwide had to move to an unplanned online learning context, implying challenges such as implementing an adequate technological infrastructure and internet connectivity. In spite of universities' considerable efforts, this emergency online teaching context has had a negative impact on education quality (Barrientos et al., 2022). This was true for Peru as well; according to the Peruvian Ministry of Education (MINEDU, its acronym in Spanish), the dropout rate reached 16% in 2021. In addition, students perceived that the evaluation or grading criteria of virtual education were less demanding than face-to-face education (Gestión, 2022).

It is vital to address this problem because poor education quality at universities can have a number of severe and negative consequences for students' development and future. Just to mention some, a lack of adequate preparation for the labor market can make it challenging to find employment or limit job opportunities (Asociación de Egresados y Graduados PUCP [AEG PUCP], 2022). In addition, low education quality in universities can lead to a superficial or incorrect understanding of the basic concepts of a field, which in

turn might have a negative impact on graduates' abilities to practice their profession (Diego Olite et al., 2023). Hence, inadequate university education can perpetuate social and economic inequality, as those who do not receive a quality education might face considerable barriers in terms of income and social aspects (Yamada et al., 2014). In short, poor education quality can have a lasting impact on people's well-being and opportunities throughout their lives.

Information technologies (ITs) have claimed to be potential tools to improve the learning process and, thus, education quality. Indeed, a successful integration of ITs in face-to-face classes has the potential to transform education in a positive manner (Backfisch et al., 2021). By integrating digital tools, it is possible to customize learning to meet individual student needs and provide interactive resources and multimedia materials that promote understanding and content retention (Singh Gill et al., 2024).

One technology that is gaining importance in every industry, including the education sector, is Artificial Intelligence (AI) (Chui et al., 2022). AI is defined as the ability of machines or computer systems to perform tasks that would typically require human intelligence (Russell & Norvig, 2004). During the pandemic and in this post-pandemic era, the evolution and use of new AI-based technologies and other virtual tools for educational institutions has accelerated (Caillaux, 2020), with ChatGPT being the most notable.

Not surprisingly, teaching and learning methodologies are changing due to this phenomenon (García-Sánchez, 2023). For example, with the help and the correct use of ChatGPT, online support for students has been significantly enhanced by receiving quick and personalized responses to their questions (Baidoo-Anu & Ansah, 2023). ChatGPT provides students with an immediate source of information and clarifications, and thus, education has moved from being passive and reactive to interactive and aggressive thanks to these new tools (Raja & Nagasubramani, 2018). For example, ChatGPT plays an essential role in tutoring by providing accurate explanations and examples related to challenging concepts (Vázquez Formoso, 2023). It makes the material easy to understand and is especially beneficial for students who need extra help in certain areas (Montenegro-Rueda et al., 2023).

Despite all these benefits, incorrect use of ChatGPT or other comparable technologies may harm university education (García-Sánchez, 2023). While it is true that these tools have expanded the possibilities of learning and conducting research, they have also raised some ethical issues (Castillejos, 2022). For instance, an incorrect use of this tool can cause students to plagiarize, limiting their critical thinking skills (Singh Gill et al., 2024). For example, in writing-based tasks, students may present ChatGPT-produced work as their own, which undermines their academic integrity (Zhu et al., 2023). In fact, students can easily engage in dishonest academic practices because of the ease of accessing these platforms (Dilmegani, 2023). Hence, ethical issues may stand as a potential roadblock associated with the adoption and use of this tool. Based on the above discussion, this study addresses the following research question:

RQ: *What are the potential factors that may lead university students to use ChatGPT in Peru?*

Therefore, the goal of this study is to determine the more salient factors or drivers leading undergraduate students to use ChatGPT at Peruvian universities.

Literature Review

A first approach of previous research focused on the positive effects of using AI platforms like ChatGPT in an academic context. For example, Vázquez Formoso (2023) argued that AI could transform education and the learning process by bringing various benefits for the educational community, especially in the long

term, such as closing the education gap and getting personalized education. At the same time, a study by Rahman and Watanobe (2023) explored the potential opportunities that ChatGPT opens up to overall education for stakeholders, students, and teaching staff. This last study focused on the usefulness of ChatGPT in research and education. In addition, Zhu et al. (2023) drew up a SWOT analysis of ChatGPT, highlighting its powerful potential for understanding and solving complex questions, generating plausible responses, and human-like writing.

A second research stream focuses on the limitations of these platforms and their adverse effects on education. For instance, García-Peñalvo et al. (2023) assessed the potential problems of using these platforms in the education sector, mentioning the lack of critical thinking and reduced quality in text production. Similarly, Castillejos (2022) concluded that critical thinking, creative linguistic capacity, and logical-mathematical intelligence are affected when students use AI-based tools for their learning activities. In addition, Singh Gill et al. (2024) discussed the potential loss of academic integrity due to the use of ChatGPT. Besides these risks, the authors identified other potential threats, such as producing inaccurate or false information and plagiarism.

Finally, a third research stream deals with the factors driving ChatGPT use by students. For example, Tiwari et al. (2023) used the Technology Acceptance Model (TAM) with variables such as perceived credibility, perceived social presence, and hedonic motivation to determine the attitude toward ChatGPT in Oman. Similarly, Foroughi et al. (2023) concluded that performance expectancy, effort expectancy, hedonic motivation, and learning value significantly influence intention to use ChatGPT, relying on the Unified Theory of Acceptance and Usage of Technology (UTAUT2) model in India. Menon and Shilpa (2023), for their part, conducted a qualitative study in India where they concluded that the perceived interactivity of ChatGPT might be a determinant of its usage. Although these studies provide an overview of potential antecedents to the use of ChatGPT, they left unattended the impact of ethical issues and other technical features of this tool. In addition, these studies were conducted in Asian countries, which present different contexts than the case of Peru or other Latin American countries.

In short, based on the above analysis, the following research gaps were identified: 1) the role of ethical issues and other technical features of ChatGPT in students' decisions on whether or not to use this tool has net been previously addressed, and 2) there is a lack of studies about the use of this tool in Latin American countries that may lead to specific findings for this context. In that sense, this study fills these gaps by providing relevant empirical findings about the role of ethics and other features of ChatGPT in a Peruvian sample of university students.

Theoretical Framework

AI has become a critical area of study and application in the education sector. Creating language models such as ChatGPT, which has significantly improved the ability of machines to understand and produce coherent and contextually relevant text, is one of the most notable achievements in this field (Vázquez Formoso, 2023). Understanding the various levels of AI is essential before delving into ChatGPT. They range from general AI, which can match or surpass human intelligence in multiple domains, to narrow AI, limited to a few tasks and lacking generalization capabilities (Goertzel, 2015). General AI-based platforms can handle various linguistic functions with high levels of accuracy, and ChatGPT is classed in this category.

To establish a research model that incorporates the above-mentioned salient beliefs, this study uses the stimulus-organism-response (SOR) framework (Mehrabian & Russell, 1974) to determine the relationship between variables. This framework has been used to understand how the environmental characteristics of different situations influence people's decisions (Zhao et al., 2020). This framework postulates that external stimuli, such as environmental factors, can influence the cognitive and emotional processes of specific organisms, ultimately leading to certain behaviors or responses (Laato et al., 2020). This three-part conceptualization has been widely used in the field of information systems to analyze consumer behavior (Li et al., 2022; Zhao et al., 2020).

First, stimuli include factors that are beyond the control of the individual but affect the perception of the individual (organism) when exposed to these external stimuli (Lee & Chen, 2021). Hence, ChatGPT's features and capacities can be understood as stimuli in the SOR model that influence an individual's cognitive and affective state and determine behavior. Second, an organism is an intermediate state or relationship between a stimulus and a response. It oversees the control of final behavior in response to stimuli (Tang et al., 2022). The organism refers to the internal state of an individual and includes emotional and cognitive states (Lee & Chen, 2021). Third, consumer response is the result of these interactions and states. Therefore, user reaction is a response to user perception, which is influenced by various situational factors (Lee & Chen, 2021; Tang et al., 2022).

This study includes writing capacity, variety of information, and information reliability as stimuli:

a) Writing Capacity

The writing capacity of ChatGPT is defined as users' perceptions of the quality of a document produced by ChatGPT. This feature is an expected consequence of ChatGPT's extensive training in a wide range of topics and writing styles. This AI can produce extended texts about specified topics and create an adequate structure (Su et al., 2023). The input needs to be clear, and, in order to obtain solid writing output, it is crucial to provide indications that are as specific as possible. Besides, ChatGPT can be a reliable, and versatile tool to improve the quality and effectiveness of writing. Thus, it can enhance written communication (Lin & Chang, 2020).

b) Variety of Information

This feature is defined as users' perception of the number of sources that ChatGPT uses to produce a document. ChatGPT's knowledge comes from an extensive background in various subjects, backed by a vast database updated through September 2021 (Rao et al., 2023). This characteristic allows this AI-based application to provide accurate and up-to-date information on various topics, ranging from science and technology to art, culture, and much more. Whether providing specific data or explaining complex concepts, its access to this wide variety of information makes it a versatile tool for pursuing knowledge and advice on various topics and disciplines (Deng & Lin, 2022).

c) Information Reliability

The reliability of the information is defined as users' perception that the information used by ChatGPT to produce a document is reliable. ChatGPT is supposed to use a rigorous and meticulous curation of data from reliable and verified sources until 2021 (Rao et al., 2023). It is supported by diversified and supervised texts to ensure accuracy and consistency in its answers. However, it must be remembered that its knowledge is based on information available until September 2021, so ChatGPT cannot be relied on for new knowledge after that date (Shen et al., 2023).

Organism-Related Variables

Perceived usefulness and perceived ethical issues are classed in this category as follows:

a) Perceived Usefulness

Perceived usefulness (PU) is defined as users' perceptions of job performance enhancement capability (Davis et al., 1989). In the context of ChatGPT, perceived usefulness is related to users' perceptions that using this platform may improve their learning process. Accordingly, students will perceive that ChatGPT is helpful as long as this AI-based tool supports them during their learning activities (Sebastian, 2023). Finally, it is related to the definition of "organism" because it represents an internal cognitive process in which the individual evaluates and interprets the usefulness of a stimulus, and this evaluation affects the organism's response to the said stimulus.

b) Perceived Ethical Issues (PEI)

In contrast to the previous variables, that might be important for any technology (Davis et al., 1989), perceived ethical issues are more specific for the use of ChatGPT or similar tools. Perceived ethical issues is defined as users' dilemmas that using ChatGPT is ethical and academically correct. Although ChatGPT was designed to provide support and facilitate content generation, it is crucial to remember that it is an algorithm-based tool and does not possess ethical awareness or discernment (Jinchuña Huallpa et al., 2023). Therefore, the user is responsible for ensuring ethical standards (Stahl & Eke, 2024).

Some ethical issues with the use of ChatGPT might include academic integrity, plagiarism, and lack of originality (Singh Gill & Kaur, 2023). For example, submitting others' work as their own can undermine students' academic integrity and the learning process (Huh et al., 2023). In addition, there is the possibility that, instead of improving their problem-solving and critical thinking skills, students may become dependent on this technology (Castillejos, 2022).

To address these threats, universities should foster a culture of academic honesty and establish clear rules for appropriately using tools such as ChatGPT (Zhu et al., 2023). Evaluating practices that promote originality and independent thinking is also something educators can use, but first, it is essential to understand the factors leading students to use these platforms. Accordingly, perception of ethical problems is related to the definition of "organism" because it represents an internal cognitive and emotional process in which the individual interprets and evaluates the ethical relevance of a stimulus, and this evaluation affects the organism's response to ethically challenging situations.

Behavioral intention is the determinant of actual behavior because people typically act following their intentions within context and time constraints (Davis et al., 1989). Behavioral intention is defined as a person's propensity to act based on anticipated responses and goals (Faqih & Mousa Jaradat, 2015). Hence, behavioral intention is categorized as a response in this study.

Hypothesis

Impact of Stimuli on Organism

A proficient writing capacity implies the ability to communicate ideas clearly and effectively. Therefore, a well-written text reduces the possibility of misunderstanding or confusion when it is read. This feature may

lead users to assess the output of ChatGPT, which may turn into a better evaluation of the usefulness of this tool, as users can interact with ChatGPT smoothly and perform tasks without unnecessary complications. Hence it is hypothesized:

H1: Writing capacity positively influences Perceived Usefulness

An improvement in ChatGPT's ability to generate text more convincingly could increase the risk of misuse, such as creating false content or manipulating opinions, thus exacerbating ethical issues related to misinformation and undue influence. Hence, it is proposed:

H2: Writing capacity has a direct effect on Perceived Ethical Issues

A wide variety of information provides users with a complete range of resources and solutions to address different needs and usage scenarios. Hence, by offering a wide variety of information, ChatGPT provides users with access to resources that can be tailored to their individual needs. In other words, a wide variety of information can lead users to assess whether ChatGPT can cover their needs in various scenarios and thus increase their perception of the usefulness of this tool. Hence, it is hypothesized:

H3: Variety of Information positively influences Perceived Usefulness

However, a greater variety of information on ChatGPT could allow for the generation of more persuasive and diverse content, which could intensify the spread of biased opinions, thus increasing the ethical challenges associated with the manipulation and polarization of information. Hence, it is proposed:

H4: Variety of Information has a direct effect on Perceived Ethical Issues

High levels of information reliability increase users' certainty about the correctness of the output of this platform. When users trust the accuracy and truthfulness of the provided information, they feel confident in using it. This reduces uncertainty and the possibility of making mistakes, which in turn improves users' perceptions of usefulness. That is, the greater the user perception of ChatGPT's information reliability, the more useful this platform will be. So, it is hypothesized:

H5: Information Reliability positively influences Perceived Usefulness

However, a greater trust in information generated by ChatGPT can lead to an indiscriminate acceptance of potentially incorrect or biased content, thus amplifying ethical issues related to credibility, misinformation, and lack of oversight in the use of AI. Hence, it is proposed.
H6: Information Reliability has a direct effect on Perceived Ethical Issues

Impact of Organism on Response

A higher perception of usefulness implies that a tool meets user needs and objectives effectively. When a user perceives something as valid, it means that he or she finds value in using it because it fulfills a purpose or solves a specific problem (Horton et al., 2001). This positive perception increases the likelihood that the user intends to continue using it since it meets his expectations and needs (Chau & Hu, 2007). Hence, this study hypothesizes:

H7: Perceived Usefulness positively influences Intention to Use

Perceived ethical issues may generate distrust in users, which deters their intention to use a tool. When users perceive potential bad outcomes, they are motivated to avoid the tasks leading to them (Vroom, 1964). Hence, if users assess ethical issues to be highly probable, they may reduce their intention to engage with ChatGPT. Hence, the following hypothesis is presented:

H8: Perceived Ethical Issues negatively influence Intention to Use

Research Methodology

All variables were measured using prior studies, and they were contextualized to fit the research context. Each one was assessed using multiple items on a 5-point Likert scale from Strongly Disagree (1) to Strongly Agree (5). Appendix A shows the specific items used in this study. Writing Capacity, Information Reliability and Perceived Ethical Issues were measured in 3 items adapted from Espinoza (2017), Wang and Lin (2017) and Ray (2023), respectively. The construct of Variety of information was measured with 2 items adapted from (Chang, 2011). Finally, Perceived Usefulness and Intention to Use were both measured with 4 items adapted from Chi (2018).

This study targeted undergraduate students from Peru that are 18 years old or over as potential users of ChatGPT at universities. This study collected data through a survey technique using Google Forms. The survey was provided in Spanish and included four sections. Participants were contacted through social media by using the snowball sampling technique. This study used structural equation modeling (SEM) to assess the research model. The partial least squares (PLS) variance-based technique of SEM was selected and SmartPLS 3.0 was the tool used (Ringle et al., 2015). Data was collected from October to November 2023. A total of 108 valid responses were used for further analysis. Table 1 shows detailed information on the demographic data.

Table 1: Demographic Data

Variable	Options	Distribution	Percentage
Sex	Male	68	62.69%
	Female	40	37.04%
Age	18 to 22 years old	55	50.93%
	23 to 27 years old	34	31.48%
	28 to 32 years old	17	15.74%
	33 years old or more	2	1.85%
Current year of study	First year	4	3.70%
	Second year	21	19.44%
	Third year	35	32.41%
	Fourth year	36	33.33%
	Fifth year	12	11.11%
Experience level	Basic level	6	5.56%
	Beginner level	31	28.70%
	Intermediate level	50	46.30%
	Advanced level	18	16.67%
	Expert level	3	2.78%

Results

The validity of the measurement model was established using construct reliability, convergent validity, and discriminant validity. Item reliability was assessed by examining each item's loading on its corresponding latent variable. All item loadings in Table 2 were more significant than the criterion of 0.6 suggested by Barclay et al. (1995). Internal consistency (reliability) was assessed by examining composite reliability values, which ranged from 0.781 to 0.861 (see Table 2). These values were greater than the recommended value of 0.7 (Nunnally, 1978). Finally, this study also found all AVE values were greater than the criterion of 0.5 (see Table 2) suggested by Hu et al. (2004).

Table 2: Reliability and Convergent Validity

Construct	Item	Loading	CR	AVE
Intention to Use (IU)	IU1	0.888	0.781	0.549
	IU2	0.613		
	IU3	0.694		
Perceived Ethical Issues (PEI)	PEI1	0.856	0.840	0.724
	PEI2	0.845		
Perceived Usefulness (PU)	PU1	0.771	0.823	0.609
	PU2	0.860		
	PU4	0.701		
Variety of Information (VI)	VI1	0.882	0.820	0.696
	VI2	0.783		
Writing Capacity (WC)	WC2	0.824	0.861	0.757
	WC3	0.914		

To establish the discriminant validity, this study compared the correlations among the variables with the square root of the AVEs. Adequate discriminant validity is present when the square root of the AVEs is greater than the correlations among the constructs (Chin, 1998). An examination of Table 3 shows that this criterion is met. Together, all these tests suggest that the measurement model demonstrated adequate item reliability, convergent reliability, and discriminant validity.

Table 3: Discriminant Validity of the Constructs

Construct	IU	PEI	PU	IR	VI	WC
IU	**0.741**					
PEI	*0.397*	**0.851**				
PU	*0.373*	*-0.267*	**0.780**			
IR	*-0.038*	*0.031*	*-0.035*	**1.000**		
VI	*-0.069*	*0.249*	*-0.266*	*0.041*	**0.834**	
WC	*0.268*	*0.138*	*-0.194*	*0.246*	*-0.124*	**0.870**

To assess the explanatory power of the proposed structural model, this study analyzed the R^2 values of the dependent variables and the paths between the variables (see Figure 1). The proposed research model accounts for 23.6%, 17.2%, and 26.2% of the variances (R^2 values) in intention to use, perceived ethical

issues, and perceived usefulness, respectively. The results indicate that writing capacity significantly influences perceived usefulness (H1, β=0.179, p<0.1). Moreover, the results show that perceived usefulness and perceived ethical issues are predicted by variety of information (H3, β=0.259, p<0.001, and H4, β=0.238, p<0.001, respectively). In addition, there is support for the direct effect of perceived usefulness on intention to use (H7, β=0.288, p<0.1) and perceived ethical issues on intention to use (H8, β=0.321, p<0.1). However, the effect of information reliability and writing capacity on perceived ethical issues was found to be non-significant, and thus, hypotheses H2 and H6 were not supported. This non-significance was also found in the effect of information reliability on perceived usefulness. Therefore, H5 was not supported.

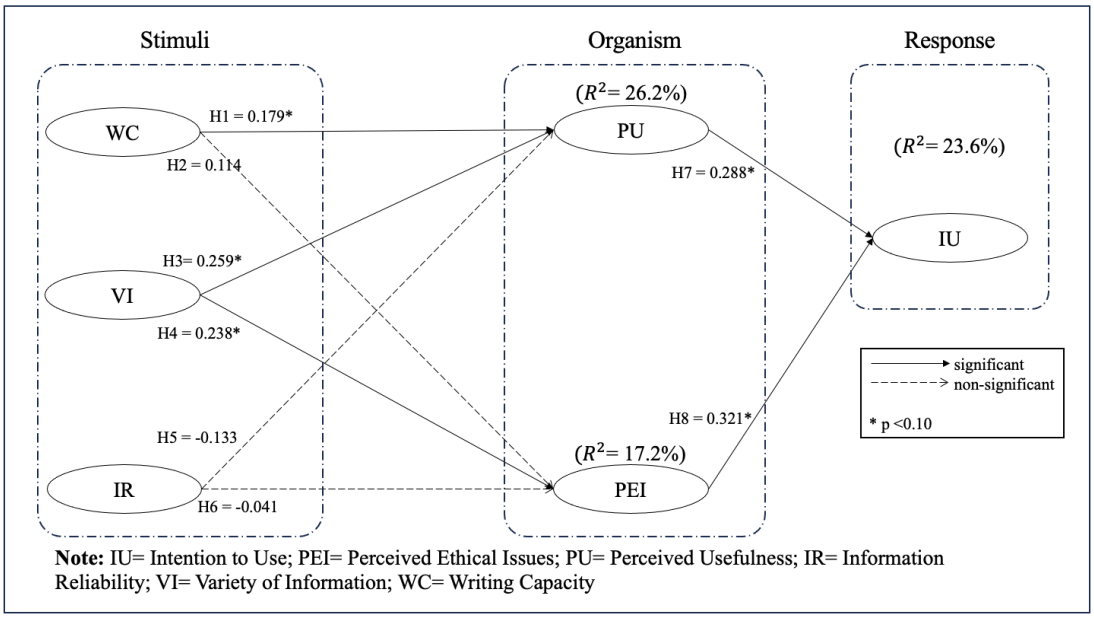

Figure 1: Structural Equation Model Assessment

Discussion

The use of ChatGPT has recently begun to grow rapidly in Peru, especially in academic environments. However, in spite of the associated potential benefits described previously, the use rate of this AI tool in Peru is low (0.71%) compared with other Latin American countries (Salazar, 2023). There is a particular emphasis in terms of how students' performance can be affected by ChatGPT. This analysis is relevant for higher education because of its impact on the future of the society. Hence, the main objective of this study is to understand the critical factors that influence the intention to continue to use ChatGPT, considering ethical implications. Accordingly, this study developed a preliminary model that includes current undergraduate students' salient beliefs about this technology. The results found preliminary empirical evidence that suggests a significant role in writing capacity, variety of information, perceived usefulness, and perceived ethical issues, supporting most of the hypotheses.

Regarding the hypotheses proposed in this study, it was found that perceived ethical issues and usefulness have a positive impact on the intention to use this generative tool. In terms of ChatGPT's features, it has been shown that information variety has a positive impact on both perceived ethical issues and usefulness. In contrast, writing capacity was found to impact only perceived usefulness. Finally, no significant relationship was found in three hypotheses (H2, H5, and H6). First, the unexpected result with regard to the impact of information reliability on perceived usefulness can be explained by the fact that most of the users

are aware that ChatGPT is a tool that provides answers based on existing patterns and data. Hence, they do not blindly assume its veracity. Second, if students recognize that ChatGPT may have biases or generate inaccurate responses, and they take steps to independently verify and validate the information, information reliability may not directly influence the perception of ethical problems. Third, when students are aware that ChatGPT is a generative tool and not an agent with complete understanding, then they exercise critical judgment, verify information, and recognize the limitations of the model. In that sense, writing capacity may not affect the perception of ethical issues.

Theoretical Implications

In the literature review section, this study identified two gaps: there are no studies focused on the role of ethical issues and other technical features of ChatGPT in students' decisions on whether or not to use this tool, and there is a lack of studies about the use of this tool in Peru that may produce particular findings for this context. Accordingly, the present study contributes to filling these gaps by finding theoretical and empirical evidence of the positive impact of these variables on students' intention to use ChatGPT. For the second gap, the study contributes by bringing results with data collected in Peru.

Practical Implications

First, ChatGPT's writing capacity makes a significant impact in the real world by providing students with a valuable improved tool for writing essays, reports, and academic projects. It serves as an additional tool that promotes clear and consistent content writing, saves time, and improves the quality of writing. However, students are expected to think critically and complement the information they learn in ChatGPT with a deeper understanding of the subject and checking of sources. A good idea for enhancing this critical thinking is by implementing topics on the ethical use of ChatGPT in courses such as ethics or promoting talks to instill in students the benefits of an ethical use of ChatGPT.

Second, a wide variety of information on ChatGPT can benefit students by giving them different perspectives on topics and enriching their research and academic activities. This helps them to get a complete and clear understanding of the subject they are studying. For example, if universities implement the use of ChatGPT in classes, students will be able to consult any kind of topics and academic sources to confirm and complement the accuracy of the information provided by teaching staff. Additionally, teaching staff should make sure to maintain academic integrity by talking about the correct use of this AI-based tool. On the other hand, the diverse information of ChatGPT might raise ethical concerns in students as this information may contain biased opinions or unverified information. This context highlights the need for students to develop essential skills to evaluate and filter the information they receive so that they do not blindly accept content that may influence their learning. For instance, students may examine the methodology, review additional studies, and consider various perspectives before integrating the information into their research, avoiding blind acceptance of potentially biased data. Hence, it is vital that universities train teaching staff and students to reinforce the benefits of the ethical use of ChatGPT.

Finally, perceived ethical issues have a significant impact on the intention to use ChatGPT. However, the impact was found to be positive rather than the hypothesized negative effect. This finding suggests that as long as students recognize ethical issues in the use of this tool, their intention to use it will increase as well. Hence, universities need to raise awareness of potential ethical issues associated with the use of ChatGPT. By doing so, students will be aware of potential risks, and thus, they will be motivated to use this tool in the correct way, which may benefit them. This study recommends universities organize events to inform students about the technical features of ChatGPT as well as to train them in the use of this digital tool in

the correct way. Accordingly, workshops about the use of this tool for legitimate purposes can be implemented.

Conclusion

This study enables to determine the main factors that may influence the use of ChatGPT by Peruvian undergraduate students. It was found that writing capacity, variety of information, perceived usefulness, and perceived ethical issues have an impact on students' intention to use this AI-based tool. The use of ChatGPT for academic purposes should be accompanied by an ethical code. To achieve this goal, authorities from universities should promote the correct use of this tool and disseminate the ethical implications along with workshops to show students the benefits of appropriate use of this digital tool.

The present study stands as exploratory and preliminary research on the use of ChatGPT by students, and thus it has certain limitations. First, evidence of the supported relationships is empirical in nature but proper theoretical foundations to support the model are yet lacking, particularly the role of ethics in student behavior. Future studies may therefore focus on building the theoretical background to explain the proposed model in this study. Second, the sample was made up only of 108 undergraduate students in Peru, which reduce the external validity of the findings. Hence, future studies may test these findings with larger and more heterogeneous samples to improve its generalization. Third, this study focuses on only three features of ChatGPT, but there may be other important features that were not included. Thus, future studies may expand the role of other features of ChatGPT or similar platforms.

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Appendix A: Survey Questions

Intention To Use (IU)	
IU1 (λ= 0.888)	I intend to use ChatGPT for academic purposes for the rest of the semester
IU2 (λ= 0.613)	I expect to use ChatGPT for academic purposes for the rest of the semester
IU3 (λ= 0.694)	It is likely that I will use ChatGPT for academic purposes for the rest of the semester.
IU4 (R)**	I will NOT use ChatGPT for academic purposes for the rest of the semester
Perceived Usefulness (PU)	
PU1 (λ= 0.771)	Using ChatGPT has improved my academic performance
PU2 (λ= 0.860)	Using ChatGPT has improved my academic productivity
PU3(R)**	I think that using ChatGPT is NOT convenient for academic purposes
PU4 (λ= 0.701)	Using ChatGPT has enhanced my effectiveness in my academic tasks
Perceived Ethical Issues (PEI)	
PEI1 (λ= 0.856)	ChatGPT presents ethical challenges
PEI2 (λ= 0.845)	ChatGPT might generate content that is morally ambiguous
PEI3**	There are ethical considerations in student-ChatGPT interaction
Writing Capacity (WC)	
WC1**	ChatGPT generates sentences that do not contain syntactic errors and connect perfectly when forming paragraphs.
WC2 (λ= 0.824)	ChatGPT generates content that clearly reveals the existence of an introduction, development, and conclusion.
WC3 (λ= 0.914)	ChatGPT generates content with no spelling and/or punctuation errors
Variety of Information (VI)	
VI1 (λ= 0.882)	ChatGPT has a large selection of sources of information
VI2 (λ= 0.783)	ChatGPT offers a wide variety of sources of information
Information Reliability (IR)	
IR1**	The information provided by ChatGPT is up to date
IR2 (λ= 1.000)	The information provided by ChatGPT is accurate
IR3**	The information provided by ChatGPT is reliable

(R) reverse coded.
(**) Dropped item because its loading was less than 0.6