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EXPLORING UNIVERSITY STUDENTS' PERSPECTIVES' ON CHATGPT INTEGRATION IN EDUCATION

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Abstract

This study explores university students' perceptions of ChatGPT, focusing on its educational benefits, drawbacks, and possible solutions. Data were collected through an online questionnaire completed by 350 students. A descriptive research design and Multinomial Logistic Regression (MLR) were used to analyze responses. Findings show that 53.14% believe ChatGPT positively impacts academic performance, 47.14% find it useful for writing assignments, and 50% use it for exam preparation. However, students' express concerns about its accuracy (61.72%), reliability (52.29%), privacy risks (52.57%), potential bias (47.33%), and misuse (43.71%). Broader concerns include security vulnerabilities (55.14%) and fears about AI replacing human labour (56.29%). Recommendations include integrating AI education into curricula to help students understand both capabilities and limitations of models like ChatGPT and emphasizing ethical considerations. Educator training should focus on evaluating information reliability, recognizing bias, and critically assessing AI-generated content. Educators should also prioritize human sources when appropriate. For policymakers, enforcing regulations that uphold accuracy, reliability, privacy, and ethical standards in AI is crucial. Developers are encouraged to improve model transparency and explainability to foster trust and accountability.

Keywords – Artificial intelligence, ChatGPT, Education, Perceptions of AI.

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1. Introduction

1.1. ChatGPT

ChatGPT is a Natural Language Processing (NLP) tool driven by Artificial Intelligence (AI) technology that allows one to have human-like discussions and much more with the chatbot. Questions and help with assignments, emails, essays, and code can be provided by the language model. As an industry's next big disrupter, ChatGPT can generate information in clear, simple language, generate ideas from start,

including business plans, blog topics (Grant & Metz, 2022). Rudolph, Tan and Tan (2023) identified three key functionalities of ChatGPT:

(1) Dialogue generation – generating natural language responses in a conversational context.

(2) Question answering: The model can provide answers for a variety of topics in a conversational setting. The model can respond to queries on a variety of subjects.

(3) Text generation – Can be utilized to create text in a certain genre or style.

1.2. Milestone of and Application of ChatGPT

According to OpenAI (2023), ChatGPT reached one million users only five days after its initial launch (see Figure 1). However, during development, occasional error messages were received because of high user traffic. This partly led to continuous improvements (Rudolph, et al 2023). Reports by OpenAI (2023) shows that between 2018-2023, ChatGPT had 100 million monthly active users (see Figure 1). Additionally, it has about 1.8 monthly visits in April 2023, making one of the most visited websites in the world, above Reddit, and Netflix (Hill, 2023). This is an impressive record in such a short time (Ibeh, 2023).

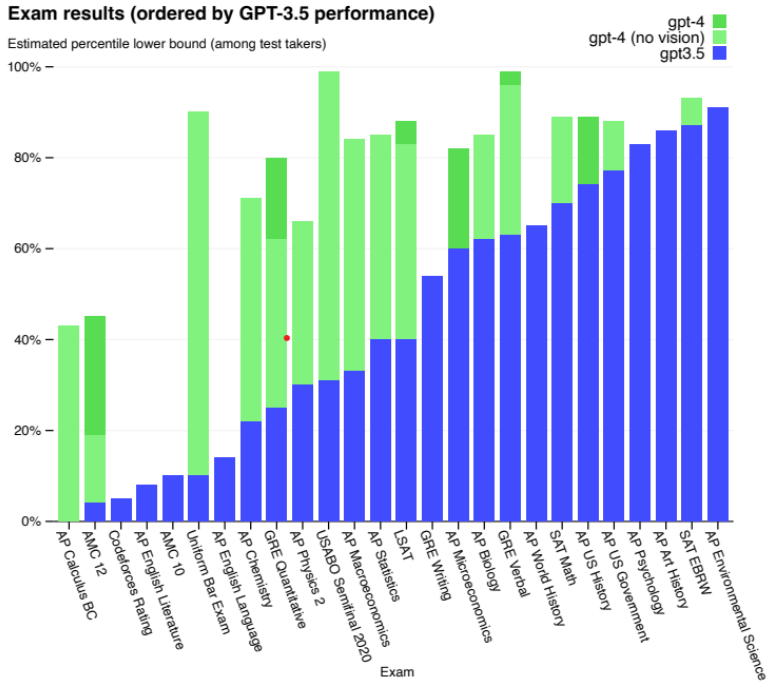

Figure 1. GPT performance on academic and professional exams

"In each case, we simulate the conditions and scoring of the real exam. Exams are ordered from low to high based on GPT-3.5 performance. GPT-4 outperforms GPT-3.5 on most exams tested. To maintain a conservative approach, the lower end of the percentile range is reported. However, this method introduces certain artifacts in the case of AP exams, where scoring bins are particularly wide. For example, although GPT-4 attains the highest possible score on AP Biology (5/5), this is only shown in the plot as 85th percentile because 15 percent of test-takers achieve that score" (OpenAI, 2023; Ibeh, 2023).

ChatGPT has several applications in education, businesses, the industry, and life in general (OpenAI, 2015; Rudolph at al., 2023; Ibeh, 2023). These include but not limited to: Provision of more streamlined translation services (Ortiz, 2023, Ibeh, 2023), generating literature with reports of outputting of inaccurate content (Rudolph et al., 2023). There is personalized learning experience especially in guiding

students differently according to their needs (Rudolph et al., 2023), content creation and management, developing more sophisticated chatbots for customer service and many more (Ortiz, 2023).

1.3. ChatGPT in Education

Scientific investigation on ChatGPT in education has recently emerged in the domain of AI and education research (Memarian & Doleck, 2023; Ngo, 2023). There are concerns on effective implementation of AI and its long-term impact on teaching roles and the student's assessment of AI (Memarian & Doleck, 2023), the potential impact of AI on education and whether it will enrich or undermine students' intellectual development (Zhang, 2023). The use of AI in education for a variety of tasks, including writing assignments, curriculum development, and lecture preparation, has increased dramatically in recent years. ChatGPT (generative pre-trained transformer), has become one of the most popular AI tools since about half a decade. OpenAI created this cutting-edge AI technology in late 2022, and it has since attracted a lot of interest (Rudolph et al., 2023). It is seen to offer an impressive performance in offering a well-structured, logical, and informative responses with a global attention (Zhai, 2023). It gives a human-like response-generation abilities, with an emphasis on personalized and interactive assistance (Ngo, 2023). According to OpenAI (2023), as a free and new AI chatbot, the launching of ChatGPT significantly led to the OpenAI's estimated value leapfrogging to US$29 billion. As an AI-based software application, with ChatGPT can engage in human-like conversations. The diverse applications and benefits of ChatGPT made it reach one million users only five days after its initial launch (Rudolph, et.al, 2023). ChatGPT has thus revolutionized education, businesses, and many other sectors. It is regarded as one of the most popular apps in the world (Ibeh, 2023). The New York Times coined ChatGPT "the industry's next big disrupter" that "could change the world" (Grant & Metz, 2022). This extraordinary surge in user adoption highlights the significant impact and widespread acceptance of ChatGPT in the domain of NLP, solidifying its transformative position within the field (Ngo, 2023). Hence, ChatGPT holds promise as a valuable tool to support students in their educational journeys, generating significant interest from learners worldwide (Ngo, 2023). However, it has also come with a lot of challenges.

Recent studies have assessed the potential of the use of ChatGPT for educational purposes (Cooper, 2023; Cotton, Cotton & Shipway., 2024; Duha, 2023; Memarian & Doleck, 2023; Kasneci, Sessler, Küchemann, Bannert, Dementieva, Fischer et al., 2023; Dwivedi, Kshetri, Hughes, Slade, Jeyaraj, Kar et al., 2023). Most of these studies, which are reviews and recent empirical investigations, assessed ChatGPT from a qualitative lens, providing comments on its potential, limitations, and threats. They recommend that future work adopt a more empirical rather than opinion-based stance and examine ChatGPT in education by asking specific questions about its use and perception (Cooper, 2023). This is the research gap addressed in this study.

Theoretically, the Innovation Diffusion Theory (IDT) and the Technology Acceptance Model (TAM) have been utilized to understand perception of the use of modern technology (Takahashi, Figueiredo & Scornavacca, 2024, Zhang, Yu, Yan et al., 2015). Al-Adwan, Li, Al-Adwan, Abbasi, Albelbisi and Habibi (2023) extended TAM to predict the adoption of metaverse technology in higher education by investigating factors that influence students' intentions to adopt metaverse technology for educational purposes. A better understanding of how innovative technologies, such as ChatGPT, spread throughout a population, including university students' perceptions, can be achieved by applying IDT (Takahashi et al., 2024, Zhang et al., 2015). Understanding how these constructs explain students' use of ChatGPT or the advantages it offers can be aided by MLR. When the dependent variable is categorical and has more than two levels, MLR is ideal as it is capable of establishing a connection between the independent constructs of IDT and the dependent variables. The dependent variable for this research could be impact levels of specific advantages of using ChatGPT: Extremely Very Likely, Very Likely, and Likely.

A few empirical studies on ChatGPT and education showed the need to further unravel the evaluation of the use of ChatGPT for education and learning (Dai, Lin, Jin, Li, Tsai, Gašević et al., 2023; Elder, Pozek, Horine, Tripaldelli & Butka, 2023; Ngo, 2023). For example, Dai et al., (2023), heavily relied on human annotation which is time-consuming, measured the overall agreement between the instructor's

feedback and ChatGPT's feedback in terms of polarity on each assessment aspect. Ngo (2023) clearly stated that to enhance the external validity of future research, participants should be drawn from diverse educational backgrounds and age ranges to capture a broader representation of learners (Ngo, 2023). In addition, the authors concluded that ChatGPT can generate more readable feedback with greater consistency, with advocacy needed to support deploying ChatGPT to help educators provide personalized feedback of consistently high quality for a larger scale of class in less time. Despite the growing concerns and the need for thorough investigation between perception of ChatGPT and education, there is a scarcity of studies that delve into students' actual experiences with using ChatGPT. The main goal of this paper is therefore to address this lacuna. This study systematically observes, documents, and analyzes university students' perspectives on the integration of ChatGPT in education, without manipulating any variables.

2. Methodology

The design of this research is based on descriptive research, in order to systematically observe and analyze the characteristics of university students' points of view about integrating ChatGPT into education without changing variable. In this sense, this approach gives an adequate description of present conditions or relationships in a particular context (Dulock, 1993). Methods of collecting the data included dissemination of semi structured questionnaires, which were administered to purposefully sampled 350 students, through an online survey plat form, Google Forms. By means of this technique, it was possible to collect data effectively and representatively in terms of different programmes' students. Semi structured questionnaires were used as the decision to use them enabled us to achieve consistency in response from the participants while giving us a room for them to further expound on the answers. Ethics was paramount in this study, and participants were fully informed about the nature of the study, its risks and benefits. Efforts were made to protect the privacy of and confidentiality to participants, for example anonymizing data and storing it securely. This was a comprehensive form of understanding students' perspective on ChatGPT integration into education in the university overall. It helps in offering insights for decision making and future research.

2.1. Statistical Model

For the purposes of assessing University students' perceptions in ChatGPT, the MLR is utilized. As the dependent variable is more than one or two categorical outcomes in this case, the perceptions students might have (Kwak & Clayton-Matthews, 2002), this statistical technique is appropriate. Consequently, the dependent variable can be in this context is the different categories or levels of perception (e.g. positive, neutral, negative). The model calculates the probability of the perception belonging in a particular category compared to one of the reference categories, typically the baseline or the most frequently perceived category. It accomplishes this by examining the relationship between the predictor variables (e.g., demographics, frequency of use of ChatGPT) and the multiple categories of the perceptions. Regression coefficients yield information about the effect of each predictor variable on the chances of perceiving in a certain way.

In MLR model formulation, the probability of each category k of dependent variable Y for a set of predictor variables X_1, X_2, …, X_p need to be estimated. I shall denote $P(X=k|X)$, as the probability that category k obtained the predictors. The model states that the predictors and the log-odds of probability are linearly related. This relationship can be expressed as:

$$\log\left(\frac{P(Y=k|X}{P(Y=\text{reference category}|X)}\right)=\beta_{0k}+\beta_{1k}X_1+\beta_{2k}X_2\ldots+\beta_{pk}X_p \quad (1)$$

Where β_{0k} represents the intercept of the category k, β_{1k}, β_{2k}, …, β_{pk} are the coefficients associated with the predictors X_1, X_2, …, X_p for category k. $P(Y = \text{reference category}|X)$ is the probability of the reference category, often chosen as baseline for comparison. The probabilities for each category are obtained by exponentiating the log-odds.

$$P(Y = k|X) = \frac{e^{\beta_{0k}+\beta_{1k}X_1+\beta_{2k}X_2\ldots+\beta_{pk}X_p}}{1 + \sum_{j=1}^{K-1} e^{\beta_{0j}+\beta_{1j}X_1+\beta_{2j}X_2\ldots+\beta_{pj}X_p}} \quad (2)$$

Where k is the total number of categories for the dependent variable Y. The coefficients, β_{0k}, $\beta_{1k}X_1$, $\beta_{2k}X_2$, …, $\beta_{pk}X_p$ are estimated using the maximum likelihood and the model parameters are fitted to the data using optimization algorithms (Böhning, 1992).

3. Findings

3.1. Demographic Information of Participants

	Category	Number	Percentage
Age	< 18	1	0.29%
	> 55	2	0.58%
	18 - 25	136	39.19%
	26 - 35	166	47.84%
	36 - 45	36	10.37%
	46 - 55	6	1.73%
Highest level of education	Bachelor's degree	192	55.33%
	Doctorate degree	1	0.29%
	High school	34	9.80%
	Higher Diploma in Software Development	1	0.29%
	IGCSE	1	0.29%
	Master's degree	112	32.28%
	Post law course	1	0.29%
	Post-doctorate	4	1.15%
	Undergraduate	1	0.29%
Employment status	Full-time	48	13.83%
	Internship	8	2.31%
	None of the above	124	35.73%
	Part-time	167	48.13%

Table 1. Demographic information of participants

According to Table 1 most respondents belong to the age group of 26-35, which corresponds closely to the average demography of university and college students. This imply that the poll mostly collects the viewpoints of persons who are presently engaged in or have recently finished their higher education. A considerable proportion of participants possess bachelor's or master's degrees, suggesting a reasonably high level of education among the sample. The educational background of the polled participants suggests that they are likely to have the necessary critical thinking abilities and academic knowledge to offer well-informed comments regarding ChatGPT. Employment status of the respondents is diverse; with a large portion of them being part time workers or full time workers. The article gets ideas of students who are doing their studies while having to work and those who have already worked and finished their school. The demographics are overall indicative of a heterogeneous population of university students, being not only conventional undergraduates but also individuals involved in postgraduate studies or paid on a part time or full time. University students are a diverse group of people, which results in survey including such diverse demographics being able to maintain its comprehensiveness and representativeness in capturing ChatGPT perceptions. In other words, the demographics provide a lot of background as to the participants of the survey who answered the questions and represent their attitudes and experiences towards ChatGPT in the context of university students.

3.2. Descriptives Statistics

3.2.1. Benefits of ChatGPT in Education

As per Table 2, many of the respondents agree (53.14%) that use of ChatGPT technology would be positive for Academic Performance. This shows the vast majority of people recognize the potential to improve it on academic results with ChatGPT. Around 47.14% do not see the pitfalls of relying on ChatGPT when performing writing tasks. As a consequence, a large number of users consider ChatGPT to be a powerful tool in generating written material.

Therefore, 50.00% of the respondents are aware of the benefits of using ChatGPT to enhance exam performance. This is a recognition of ChatGPT's capability of easing the studying and the process of getting ready for exams. Around 45.71% of the participants believes that ChatGPT is beneficial to social research work. Consequently, ChatGPT can be considered as a useful tool to conduct research and analyse social data. Approximately 44.86% of participants recognize the potential usefulness of integrating ChatGPT into various applications. This suggests that ChatGPT can be utilized beyond traditional academic and research settings. Additionally, around 37.71% of participants perceive ChatGPT as beneficial for translation tasks.

It shows that ChatGPT can be used to strengthen the communication of different languages, and 40.00% of the respondents indicate that using ChatGPT to compose CVs (resumes) can provide benefits. Therefore, ChatGPT could be seen as a good tool for people looking for a job to have in the process of creating their professional profile. However, a high degree of respondents (44.29%) think that ChatGPT has the ability to enhance the knowledge in their particular field of expertise. In simple terms, ChatGPT can be a beneficial tool for grabbing and integrating the knowledge that is directly related to particular academic study areas or work area. About 43.14% of the applicants realise how using ChatGPT might help interpret inquiries from their area. As such, this demonstrates that ChatGPT can be seen as an invaluable tool for understanding complicated queries and providing relevant information or views.

Statement	Extremely Very likely	Likely	Unlikely	Very Likely
Do you think ChatGPT technology will have beneficial functions to academic performance?	12.29%	53.14%	8.00%	16.86%
ChatGPT for writing assignment	9.43%	47.14%	19.14%	24.29%
ChatGPT benefits for exam performance	5.43%	50.00%	22.29%	22.29%
ChatGPT benefits for social research	12.29%	45.71%	7.71%	34.29%
ChatGPT for Gaming	9.14%	44.86%	25.43%	20.57%
ChatGPT for Translation	16.29%	37.71%	10.57%	35.43%
ChatGPT for CV writing	14.86%	40.00%	8.57%	36.57%
ChatGPT being used to enhance the knowledge of your field	16.00%	44.29%	4.57%	35.14%
ChatGPT being used to interpret questions in your field	14.29%	43.14%	6.00%	36.57%

Table 2. Statements regarding the benefits of ChatGPT in the education sector

Statement	Extremely Very likely	Likely	Unlikely	Very Likely
ChatGPT misinterpreting questions	6.29%	55.43%	19.43%	18.86%
ChatGPT is unreliable	3.43%	48.86%	34.57%	13.14%
ChatGPT being used to invade your privacy	7.43%	45.14%	27.71%	19.71%
ChatGPT having discriminatory contents	4.86%	42.57%	37.71%	14.86%
ChatGPT used for terrorist activity	6.00%	37.71%	41.43%	14.86%
ChatGPT making bias decisions	6.29%	46.00%	31.14%	16.57%
ChatGPT hacked and stealing/losing large amounts of your private data	6.57%	48.57%	28.57%	16.29%
ChatGPT replacing handwork of students	12.29%	44.29%	17.43%	26.00%
ChatGPT replacing company professionals	11.43%	42.29%	21.14%	25.14%
ChatGPT becoming more intelligent than humans	10.29%	41.71%	28.00%	20.00%

Table 3. Statements regarding the challenges of ChatGPT in the education sector

3.2.2. Challenges of ChatGPT in Education

Table 3 demonstrates that majority of respondents (61.72%) are scared that ChatGPT will not exactly comprehend and address customers' inquiries. The apparent constraint in ChatGPT's comprehension and interpretation ability. On the contrary, the participant distrusts the ChatGPT (certainly and precisely delive unexpected, philippine, reliable andexetramed information), around 52.29% of them being suspicious about the reliability and dependability of ChatGPT. This could slow the acceptance and use of the technology, at least in some cases, for whatever reason suspicion about the reliability of the technology. The most polled question shows a high level of fear that ChatGPT will be used to infringe upon users' privacy (the device will be used for other purposes than stated, like spying on users), with 52.57% of respondents expressing such fears. The importance of these findings leads to implementation of effective data security practices and transparency in creation and deployment of AI technologies to mitigate privacy threats.

With almost 47.43 % answer of participants believe that ChatGPT is also capable to give discriminatory, prejudicial responses. This emphasizes the importance of addressing biases in AI models and finding means to propose equity and inclusivity in AI produced items. The greatest thing about study is that it lays bare hums' fear of ChatGPT, pointing out how it could possibly be exploited to do evil things, such as terrorist acts or pushing terrorist ideology. Additionally, 43.71% of the people feel as such, that is, a need to think and bring about regulations to avoid misusing it. Indeed, the majority of the respondents (52.86%) are scared that the ChatGPT can make biased decision and it is likely or very likely. These express fear over the potential side effects if, in(to), 'AI algorithms keep or even reinforcement prejudice.'

As it turns out, ChatGPT doesn't only raise questions, but its security risks send a number of respondents (55.14%) to worry that it might be hacked and their confidential information compromised. Therefore, implementing strong cybersecurity protocols is of great importance. Participation by a very large proportion of participants (56.29%) believes that ChatGPT can replace the human work done by students and professional workers in several sectors. This suggests that there are fears that the possible change to the established systems will be interrupted. The study shows that the respondents think very likely or likely ChatGPT will surpass human intelligence at a majority of 51.00%. This shows a realization that artificial intelligence (AI) technologies are advancing relatively quickly.

3.3. Model Results

The analysis of university students' perceptions on integrating ChatGPT into education is a complex task which MLR is helpful in analyzing since it helps to explore the possible demographic and socioeconomic factors affecting their responses. To give an example, this model can be utilized to the idea of students

responding with "Maybe" or "No" rather than "Yes" when asked whether ChatGPT should be used in education. Insights about these transitions can be derived from the model's coefficients. Coefficients with positive values indicate that some demographic or socioeconomic factors make a student more likely to be uncertain about ('Maybe') or opposed to ('No') the integration of ChatGPT. In contrast, negative ones indicate that these factors make it less so a student will hold those views (higher acceptance, "Yes").

Table 4 presents the model results. In the age aspect, positive age coefficients for certain age groups mean that younger students are more likely to express uncertain or negative opinion towards impact of ChatGPT than the older ones. The same thing happens, that is, if the coefficients of some levels of education are positive, it means that people with education levels above bachelor's level and below bachelor's level are more likely to have ambiguous or negative views. Coefficients of employment status are analysed in the light of ambiguity or negativity towards the use of ChatGPT in educational settings suggesting that students who are neither fully employed nor engaged in an activity of internship or working part time often doubt or disapprove the use of ChatGPT in educational settings.

Also, certain income factors also support the income factor that students having less income are less likely to express ambiguous or unfavourable perceptions as compared to students having more incomes. They also find, in terms of views toward the integration of ChatGPT, demographic and socioeconomic factors matter towards students' attitudes. Understanding these relationships can serve as a resource for educational policy and initiatives looking to realize the best use of ChatGPT to benefit the education sphere by easing student fears and The remarkably low p-value of the intercept (0.0000035) indicates that the overall model, incorporating all predictors, is statistically significant. This provides strong evidence against the null hypothesis, which posits that the intercept is zero. Additionally, the p-values associated with age groups are notably low, approaching zero for individuals aged 55 and above. This suggests that age is a highly significant predictor of students' responses, particularly in influencing the likelihood of selecting "Maybe" instead of "Yes." Similarly, the p-values for education level, such as 0.0875796, indicate that education has a significant effect on students' responses. Employment status also exhibits a notable impact, as its p-values (e.g., 0.0754339) are relatively low, making it a significant predictor of students' choices. Furthermore, income level demonstrates statistical significance, as seen in its p-values (e.g., 0.0277700), highlighting its influence on students' responses. Overall, these findings suggest that, in addition to significant differences in probit probability responses based on age, education, employment status, and income, the model effectively enhances predictive accuracy for most variables and is statistically significant.anxieties about using the tool, from different socio-economic and demographic backgrounds.

	Coefficients		**Standard errors**		**Z-statistic**		**p-values**	
	Maybe	**No**	**Maybe**	**No**	**Maybe**	**No**	**Maybe**	**No**
(Intercept)	-2.42470	12.38850	0.52294	0.49428	-4.63667	25.06365	0.00000	0.00000
Age>55	20.86777	6.31861	0.74863	0.74863	27.87459	8.44023	0.00000	0.00000
Age18-25	0.47830	-14.18660	0.38369	0.43692	1.24657	-32.46965	0.21256	0.00000
Age26-35	0.77759	-13.48316	0.35818	0.38607	2.17093	-34.92400	0.02994	0.00000
Age36-45	0.65229	-13.22210	0.46144	0.46507	1.41360	-28.43043	0.15748	0.00000
Age46-55	0.72221	-13.69069	1.03918	1.08338	0.69499	-12.63706	0.48706	0.00000
Highest_level_of_educationHigh school	0.22125	0.53871	0.44019	0.53984	0.50262	0.99791	0.61523	0.31832
Highest_level_of_educationMaster's degree	-0.52300	-0.50661	0.30615	0.36765	-1.70831	-1.37798	0.08758	0.16821
Highest_level_of_educationOthers	-0.93146	-0.07347	1.35608	1.25453	-0.68688	-0.05856	0.49216	0.95330
Employment_statusInternship	0.45386	1.84724	1.02281	0.97783	0.44374	1.88912	0.65723	0.05888
Employment_statusNone of the above	0.83917	0.73219	0.47202	0.54539	1.77782	1.34252	0.07543	0.17943
Employment_statusPart-time	0.49798	0.38912	0.47291	0.52727	1.05303	0.73798	0.29233	0.46053
IncomeEUR 500 or less	1.18561	-0.30364	0.53878	0.53245	2.20052	-0.57027	0.02777	0.56849
Income 501 to 900	1.39358	0.18509	0.54403	0.52244	2.56160	0.35429	0.01042	0.72312
IncomeEUR 901-EUR 1300	0.92642	-0.07489	0.54604	0.51664	1.69660	-0.14496	0.08977	0.88474

Table 4. Model results for multinomial logistic regression

3.3. Classification Table

	Yes	Maybe	No
Yes	70	0	0
Maybe	0	30	0
No	0	0	30

Table 5. Classification table

Classification table (table 5 also called confusion matrix) provides a final overview about classification model performance for a dataset by providing which classifications a given dataset was classified as actually and which ones were predicted (Larner, 2024). The table of categorization used to evaluate university students' views on the integration of ChatGPT in education, situates within analyzing university students' viewpoints on the integration of ChatGPT in education, presents a succinct summary of the MLR model's accuracy on forecasting students' reactions using the given data. Every cell in the table indicates the number of times the model made a prediction for a specific answer category (Yes, Maybe, No) and the corresponding actual response category observed in the data. For instance, the cell located at the intersection of the first row and first column (70) signifies that the model accurately predicted 70 cases when students answered "Yes", and the actual response was definitely "Yes." Similarly, the cell located at the intersection of the second row and second column (30) represents the accurate prediction of 30 cases where students responded "Maybe", and the actual response was truly "Maybe." Similarly, the cell at the intersection of the third row and third column (3) signifies that the model accurately predicted 3 cases when students answered "No" and the actual response was definitely "No." Within the study's framework, a proficient model that exhibits a high level of accuracy in its predictions suggests that the demographic and socioeconomic factors considered in the model (such as age, education level, employment status, and income) provide valuable insights into students' viewpoints on the integration of ChatGPT in education. These elements have a substantial influence on students' assessments of ChatGPT's impact in the educational setting.

4. Discussion

This study examined the viewpoints of college students regarding the utilization of ChatGPT. While previous research has explored the efficacy of ChatGPT in scenarios such as assisting with writing assignments or enhancing efficiency, there is limited investigation into the unique perceptions and utilization of this technology by university students in an educational environment. Existing research often prioritizes technical aspects or general attitudes of the population toward artificial intelligence, overlooking the specific needs, concerns, and opportunities associated with students in higher education. This study bridges this gap by providing detailed insights into the potential advantages, concerns, and challenges of integrating ChatGPT into educational practices, thereby contributing to a more comprehensive understanding of its capacity to support student learning and academic achievement.

The survey results indicate that academics, professionals, and recreationalists broadly acknowledge the advantages provided by ChatGPT. One of the things that respondents found positive about the use of the service was how it helped their academic performance (53.14%), writing assignments (47.14%), and exam preparation (50.00%), thus proving its utility. Finding these ties to ChatGPT follow the findings of Hadi-Mogavi, Deng, Juho-Kim, Zhou, Kwon, Hosny-Saleh-Metwally et al. (2024) in higher education, K-12 education, and skills training. Nevertheless, the majority of the respondents admitted a portion of uncertainty or disconnection from the potential effect created by ChatGPT in their daily routine, revealing different opinions about how ChatGPT is ingrained in their daily routines. It thus emphasizes the need to understand the effects of familiarity, accessibility and usage patterns on student groups' attitude to this technology.

Respondents, however, expressed at the same time concerns about the limitations and risks of ChatGPT. Key apprehensions with respect to the chosen issues were accuracy in query understanding (61.72%), reliability (52.29%), privacy invasion (52.57%), biased content (47.43%), and the possibility of nefarious use (43.71%). Other wider forms of anxiety, for example, security vulnerability (55.14%) and the risk of ChatGPT taking away human work (56.29%) were also equally present. These results echo Al-Mughairi and Bhaskar (2024) that concurred similar risks related to ChatGPT's use, such as reliability, replacement of human interaction, privacy and security. Further, demographic and socio economic factors were found to significantly influence attitudes regarding integration of ChatGPT in education through MLR analysis. For example, it was shown that perceptions are shaped by characteristics, including factors such as country of residence, age, type of university, and academic performance, all of which are in line with the results reported for Abdaljaleel, Barakat, Alsanafi, Salim, Abazid, Malaeb et al. (2024).

The results of the above investigation have important implications on the applications of MLR in exploring how university students perceive the employment of cutting edge technologies such as ChatGPT. However, the study shows that IDT and MLR can be used together because MLR helps understand how these constructs account for students' use of ChatGPT or the benefits they derive from it. The results indicate that MLR is appropriate when trying to connect the independent constructs of IDT with the dependent variables, where the dependent variable is more than two levels; and categorical in nature. This study may use the level at which the effect of the use of ChatGPT benefits may be the dependent variable.

Moreover, I have demonstrated clear implications for educational practice and policy that stem from these results. Education in America should follow the lead of his recognition of the potential of ChatGPT to reshape education as a means to enhance learning and efficiency in conversations with students and policymakers alike on the structured and responsible incorporation of this technology in curricula. Despite these worries about any inherent biases, concerns over accuracy, reliability, privacy, and bias demand the involvement of institutions with solid guidelines to facilitate ethical, and equitable use. For instance, enhancing digital literacy could be done via specialized training programs of both students and educators in this regard, helping users to critically evaluate AI outputs and understand their limitations.

Along with that, disparities in attitudes that are observed based on demographic and socioeconomic factors necessitate inclusive policies designed to serve the varied needs and experiences of students. Interventions tailored around means of providing equitable access to AI tools and fostering cultural and contextual sensitivity to AI, may serve to help bridge those gaps and vulnerable areas and foster increased trust. Secondly, institutions need to work hand in hand with the AI developers to have systems designed in a way that emphasizes transparency, accountability and inclusivity.

5. Conclusion

This research also offers meaningful guidance for how college students regard ChatGPT and its uses for educational purposes. The results of ChatGPT integration into an academic setting have demonstrated both reasons and challenges for bettering educational outcomes, as well as most important concerns that demand attention. It is shown in the study that MLR can be more integrated into IDT than TAM to explain ChatGPT perception since MLR will help to understand how various constructs that explain benefits ChatGPT provides. University students' perception over the integration of ChatGPT in education has no linkage much with TAM but has more linkage with IDT.

Findings from this study can be used by educators to provide suggestions on the correspondence among instructional strategies and students' perceptions and concerns. When used in an encouraging way, AI generated content can help inspire educational independence and critical thinking with students. Moreover, incorporating discussions on ethical implications of AI usage into educational practices will guarantee that students assume responsibility and become critical of the use of AI.

Students, on the other hand, have the ability to learn about privacy, bias, and security issues affecting them. It is essential for developing regulations and guidelines that emphasize transparency and accountability when it comes to deploying AI. Students' data privacy must be safeguarded, regular audits of AI algorithms must be performed to find and remove biases so the technology operates reliably and securely.

These challenges are no less applicable to developers of AI technologies such as ChatGPT. Having said that, AI systems can contribute to alleviate concerns brought up in this study by improving reliability, accurateness, and the transparency of the systems. Developers should indicate how AI algorithms function for users to decode and be able to understand their decision making process. Moreover, by working with educators and students to co create AI powered educational tools, there is an opportunity to guarantee that such tools meet user needs and educate users on responsible use of AI.

Although it makes a contribution, this paper has several limitations. The result may not be useful for all university students because attitude to ChatGPT can be different for different groups of students such as by geographical location, cultural background, discipline and familiarity with technology. The survey will also not be able to capture the totality of what influences students' perceptions on these topics, for instance, their prior knowledge with AI, their personal learning preferences, or institutional policies on granting access to technology. Additionally, the results could have been affected by the potential bias that exists in the design and administration of the questionnaire. For example, it is possible mistakes in the way questions are phrased or respondents selected or in survey delivery mode affected responses. These biases should be minimized in future studies, as rigorously designed surveys of the appropriate questionnaire are conducted with a diverse representative sample.

More in depth research of these areas should be done in the future. Such studies could offer valuable information on the way ChatGPT affects students' academic performance, as well as their critical thinking and independence in relation to time. Moreover, exploring prior AI experience, regional and cultural variations, and field differences of study would further contribute to a broader understanding regarding students' attitudes and usage pattern.

Data availability

The data is available on request from authors.

Declaration of Conflicting Interests

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