

Exploring the Impact of Usage Frequency on Perceived Value of ChatGPT among University Students: The Moderating Role of Income



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ABSTRACT: This study examined the relationship between ChatGPT's usage frequency and perceived value among 386 international university students from selected universities in the Caraga and Northern Mindanao regions of the Philippines, specifically to the moderating role of disposable income. Utilizing a quantitative, cross-sectional survey design, the results showed a significant positive correlation between usage frequency and perceived value, supporting the hypothesis that more frequent use leads to greater perceived value. However, this relationship was found to be moderated by disposable income, with the correlation between usage frequency and perceived value being stronger among students with lower disposable incomes. These findings imply that while increased usage generally enhances perceived value, the effect weakens for higher-income students, possibly due to their access to alternative resources. The study underscores the need to consider disposable income when integrating AI tools into education to promote equitable access and maximize benefits for diverse student populations. Future research should investigate these dynamics longitudinally and across various academic disciplines.

KEYWORDS: ChatGPT, Perceived Value, Usage Frequency, Disposable Income, AI Tools in Education

I. INTRODUCTION

In recent years, the use of conversational artificial intelligence (AI) tools like ChatGPT has grown exponentially, mostly among university students (Al-Khalifa, 2023). As these technologies become more integrated into academic environments, understanding their impact on educational experiences is crucial. The intersection of AI and education has been a fertile ground for research, especially with tools that offer personalized learning experiences (Yao et al., 2022). ChatGPT, developed by OpenAI, is one such tool that has captured the attention of students and educators alike. Its applications range from assisting with homework to offering conversational practice in foreign languages (Sandoval et al., 2023).

The adoption of AI in educational settings is often influenced by students' perceived value of these technologies (Zhang et al., 2021). Perceived value, in this context, refers to the benefits students believe they gain from using such tools compared to the effort they invest (Cáceres-Zambrano, 2023). Research has shown that frequent usage of a tool can enhance familiarity and perceived competence, which in turn may increase its perceived value (Golestani et al., 2021).

However, the role of socioeconomic factors such as income cannot be overlooked. Income levels can affect students' access to technology and influence their usage patterns and perceptions (Olusola, 2022). Those with higher incomes may afford more opportunities to explore diverse functionalities of AI tools, potentially altering the experience and perceived value derived from regular use. Previous studies have delved into the socioeconomic disparities in technology adoption in education (Ullah et al., 2022; Baek et al., 2021). Nevertheless, there remains a variance in understanding how income specifically moderates the relationship between usage frequency and perceived value in the context of AI-driven educational tools.

This study intends to address how the frequency of usage affects university students' perception of ChatGPT's value and explores whether income plays a moderating role in this relationship. By exploring this, this research seeks to provide an understanding of optimizing the integration of AI tools in education to accommodate diverse student needs and backgrounds.

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Theoretical Framework

This study employs an integrated theoretical framework combining Davis' (1989) Technology Acceptance Model (TAM) with the Uses and Gratifications Theory (UGT: Katz, Blumler, & Gurevitch, 1974) to explore the interplay between ChatGPT usage frequency perceived value and disposable income among university students. The TAM suggests that perceived value and ease of use drive technology adoption (Davis, 1989); thus, students perceiving ChatGPT as academically useful and easy to use will employ it frequently. This perceived usefulness is intrinsically linked to the tool's actual capabilities in fulfilling students' academic needs. Perceived ease of use is potentially influenced by disposable income (higher income may correlate with better technology access and digital literacy), which also impacts usage frequency.

Simultaneously, UGT suggests that students actively utilize ChatGPT to fulfill specific needs and seek gratifications, such as improved academic performance or enhanced learning (Katz et al., 1974). The degree to which ChatGPT satisfies these needs directly relates to its perceived value. Disposable income likely moderates these relationships. Those with higher income might improve access and expand the potential gratifications achievable through ChatGPT, thus influencing both usage frequency and perceived value; however, this effect might be non-linear and potentially more pronounced for students with fewer resources. This integrated framework offers a more comprehensive understanding than either theory alone, providing a robust theoretical basis for examining the complex interaction between technological use, perceived value, and socioeconomic factors within this context.

Conceptual Framework

This study tests the relationship between the usage frequency of ChatGPT and its perceived value among university students, focusing on the moderating role of disposable income. The conceptual framework is a moderation model (Baron & Kenny, 1986), illustrated below:

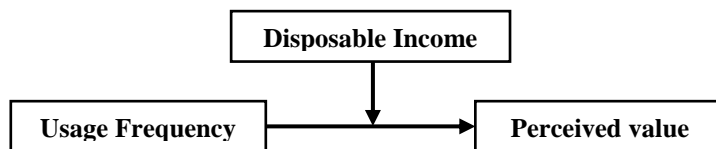


Figure 1. The framework of the study

This model proposes a direct positive relationship between the frequency of ChatGPT usage and its perceived value. Disposable income is hypothesized to moderate this relationship, meaning the strength of the association between usage frequency and perceived value will vary depending on the level of disposable income. We anticipate that this positive relationship will be stronger among students with lower disposable incomes than among those with higher disposable incomes.

Statement of the Problem

The fast advancement of artificial intelligence technologies, particularly applications like ChatGPT, has prompted a growing interest in their use among university students. Despite the increasing popularity of these tools in academic contexts, empirical research examining the relationship between usage frequencies and perceived value among this demographic is limited. Understanding how often university students use ChatGPT and how this frequency influences their perceived value of the tool is crucial for enhancing user engagement and satisfaction. Additionally, disposable income may serve as a moderating factor in this relationship, yet the extent to which it affects the interplay between usage frequency and perceived value remains underexplored. This study explores the gap in how usage frequency impacts perceived value while considering the moderating role of income among university students.

Research Objectives

1. To examine which versions of ChatGPT are most utilized among university students.
2. To assess the average disposable income of university student respondents to provide context for economic influences on usage patterns.
3. To quantify how often university students utilize various functionalities offered by ChatGPT.
4. To measure the degree to which university students perceived value in their use of ChatGPT.
5. To explore how the disposable income of university students influences the relationship between their frequency of usage of ChatGPT and their perceived value of it.

Hypotheses

1. **Main Hypothesis (H₁):** There is a significant relationship between the frequency of ChatGPT usage and the perceived value of ChatGPT among university students.

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2. **Moderating Hypothesis (H_2):** Disposable income moderates the relationship between the frequency of ChatGPT usage and perceived value, such that the positive association will be stronger for university students with lower disposable incomes compared to those with higher disposable incomes.

II. LITERATURE REVIEW

The integration of artificial intelligence in educational contexts has been widely studied, with a growing body of literature examining the adoption and impact of AI tools like ChatGPT among university students. This review summarizes research on the use of AI in education, concentrating on usage frequency, perceived benefits, and the influence of socioeconomic factors such as income.

ChatGPT Adoption and Utilization in Higher Education

The integration of ChatGPT in higher education offers significant opportunities and benefits, as outlined in various studies. AI technologies, including various versions of ChatGPT, have become increasingly prevalent in higher education, providing diverse functionalities such as interactive learning support, content generation, and personalized feedback (Johnson et al., 2020; Olaivar et al., 2024; Cheng, M.-M et al., 2021). Firstly, ChatGPT can enhance teaching and learning experiences by acting as an interactive assistant that provides personalized support, designs lesson plans, and suggests activities that foster student engagement and improve learning outcomes (Jepkemoi et al., 2024; An, 2023; Murad et al., 2023; Chen, 2024).

Moreover, studies highlight that the version of these tools used can significantly influence students' engagement and learning outcomes, with newer versions often offering enhanced capabilities and improved user interfaces (Gonzalez et al., 2022). Understanding which versions are most utilized by students informs educational stakeholders about preferred features and functionalities, enabling more targeted innovation and support. ChatGPT promotes efficiency and productivity by automating tasks such as content generation, language translation, and information retrieval (An, 2023; Murad et al., 2023; Sarker, 2023). Furthermore, its versatility facilitates interdisciplinary learning, enriching educational content across various fields (Xiaoqian Li et al., 2024), and its real-time language translation capabilities promote inclusivity and accessibility for diverse student populations (Sarker, 2023).

Nevertheless, the adoption of ChatGPT raises several challenges and concerns regarding academic integrity and the potential for misuse, as educators express worries about plagiarism and the use of AI-generated work as original submissions (Fu, 2024; Aithal, 2024). Ethical considerations around bias, data privacy, and the impact on interpersonal interactions in educational settings are also prevalent (İskender, 2023; Tlili et al., 2023). The limitations of ChatGPT in critical thinking and complex reasoning, along with the absence of clear regulatory frameworks for its responsible use, further complicate its integration (Glahn, 2024; Sallam et al., 2023). To navigate these issues, institutions should focus on transparent risk management, provide faculty and student training, integrate ChatGPT with pedagogical best practices, and continuously evaluate its impact on educational outcomes (Sallam et al., 2023; Tlili et al., 2023; Glahn, 2024). By addressing these concerns thoughtfully, educational institutions can effectively harness ChatGPT's potential while ensuring ethical and responsible use.

Socioeconomic Factors and Usage Patterns

Socioeconomic factors, particularly disposable income, play a crucial part in the adoption and use of technologies like ChatGPT in higher education. Studies indicate that students' socioeconomic status significantly influences their access to and frequency of using AI tools (Huang et al., 2021). Students from higher socioeconomic backgrounds are more likely to access and frequently utilize advanced features available through subscription models (Jepkemoi et al., 2024; An, 2023; Murad et al., 2023; Chen, 2024). In contrast, students from lower-income backgrounds may face barriers to accessing the full functionalities of ChatGPT, which are often linked to higher costs, thereby exacerbating existing educational disparities (Sarker, 2023; Xiaoqian Li et al., 2024; Fu, 2024). Additionally, socioeconomic status, encompassing factors such as family income, parental education, and occupation, can greatly impact students' access to and usage patterns of educational technologies (Aithal, 2024; İskender, 2023; Tlili et al., 2023).

This uneven access to ChatGPT based on socioeconomic status poses significant implications, potentially amplifying educational inequalities. The disparity in access and usage patterns can lead to further educational inequalities, as students from disadvantaged backgrounds may not benefit from the full range of features and functionalities offered by the technology (Glahn, 2024; Sallam et al., 2023; Wassie, 2024). This situation highlights the importance of understanding economic influences on students' usage patterns and addressing these disparities. Effective strategies may include developing policies that provide subsidized or free access to ChatGPT for students from low-income backgrounds, offering comprehensive training and support programs, and integrating the technology into pedagogical practices that cater to diverse student populations (Tuczyńska et al., 2022; Liu et al., 2021; Spencer, 2022). Such measures are crucial for promoting equitable access to educational technologies and ensuring inclusive learning outcomes for all students, regardless of their socioeconomic background (Hu, 2024; Alqudah, 2023; Zhou et al., 2022).

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Impact of Usage Frequency on Perceived Value

The perception of value derived from using AI tools like ChatGPT is closely linked to the frequency of their use. Regular interactions with ChatGPT lead to increased familiarity, competence, and perceived utility, thereby enhancing the overall educational experience (Nguyen et al., 2023; Gouia-Zarrad, 2024; Hasanein, 2023). Frequent users are more likely to perceive greater value as they explore and leverage extensive functionalities such as academic writing assistance, problem-solving support, and interactive learning (Bonsu & Baffour-Koduah, 2023; Hosseini, 2023). In contrast, sporadic users might not fully capitalize on the potential benefits due to limited exploration and utilization of the tool's functionalities, resulting in lower perceived value (Abdaljaleel, 2023; Bodani, 2023). This highlights the critical importance of continuous use in maximizing ChatGPT's potential benefits for users.

Frequent use of ChatGPT can also lead to improved efficiency and productivity, as the tool assists with tasks like content generation, language translation, and information retrieval (Tlili et al., 2023; Zawiah, 2023). The more students interact with ChatGPT, the better they can leverage its capabilities to enhance their learning and academic performance (Wardat et al., 2023; Michel-Villarreal, 2023). Institutions should thus prioritize strategies that encourage regular use, ensuring students develop the required skills and strategies to successfully integrate ChatGPT into their academic workflows (Sobaih, 2024; Sok, 2024). Continuous evaluation and adaptation of institutional approaches to ChatGPT integration can help ensure responsible and effective use, promoting equitable access and supporting all students in leveraging the tool's potential (Murad et al., 2023; Duong, 2024).

Synthesis

The integration of artificial intelligence (AI), like ChatGPT, into higher education settings has revealed both opportunities and challenges that significantly influence student experiences and learning outcomes. Research highlights that ChatGPT serves as an interactive educational assistant that can personalize support, streamline tasks such as content creation and language translation, and promote interdisciplinary learning. However, the adoption of this technology also raises concerns surrounding academic integrity, data privacy, and the need for effective regulatory frameworks. Educators stress the significance of these ethical considerations and advocate for comprehensive training for both faculty and students to navigate potential pitfalls. By thoughtfully addressing these challenges, educational institutions can maximize the benefits of AI technologies while ensuring their responsible implementation.

Furthermore, the literature indicates that socioeconomic factors play a crucial role in the usage and perceived value of AI tools among students. Students from higher-income backgrounds tend to access and utilize advanced features of platforms like ChatGPT more frequently, creating disparities in educational experiences. This inequality can lead to a widening gap in academic achievement, as those with lower socioeconomic status may not fully benefit from these technologies due to financial barriers. The frequency of use also correlates with students' perceived value of the AI tool; regular users often experience enhanced learning outcomes compared to occasional users. Consequently, it is necessary for educational institutions to develop policies aimed at increasing access for disadvantaged students and to implement strategies that encourage the regular use of AI tools across diverse student groups. By fostering equitable access and engagement with these technologies, institutions can contribute to inclusive educational environments that benefit all learners.

III. METHODOLOGY

This section details the research design, participants, instruments, procedures, and data analysis techniques utilized to investigate the research objectives. It focuses on the impact of usage frequency on the perceived value of ChatGPT among undergraduate students from selected universities in Mindanao, Philippines, while considering the moderating role of disposable income.

Research Design

This study employed a quantitative, cross-sectional survey design. This approach was selected to efficiently explore the associations between key variables, including ChatGPT version usage, frequency of use, perceived value, and disposable income within a specific population (Creswell & Creswell, 2017). The cross-sectional study allows for the gathering of data at a single point in time, providing a snapshot of the relationships among the variables (Bryman, 2016).

Participants

The final sample comprised 386 respondents after data cleaning, following an initial survey of 400 undergraduate students from selected universities in the Caraga and Northern Mindanao regions. The respondents represented a variety of colleges, which provided a diverse academic context for analysis. Specifically, 39.6% of participants were from the College of Business, 29.6% from the College of Education, and 16.4% from the College of Engineering. The remaining participants were from other colleges, contributing to a heterogeneous sample. Within each college, respondents were enrolled in different courses or programs, ensuring a broad representation of academic interests and technological usage patterns across disciplines.

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A purposive sampling strategy was implemented to target undergraduate students, capturing diverse technological usage patterns and socioeconomic backgrounds (Etikan et al., 2016). Although purposive sampling helps in acquiring particular participant traits, it could restrict the ability to generalize the results to the larger population of university students.

Instrument

The data were gathered using an online survey conducted through Surveycake.com, which comprised three sections. The first section involved user screening to confirm current ChatGPT usage for academic purposes, followed by gathering demographic information, including the university attended, program of study, and monthly disposable income.

In the second section, participants indicated their frequency of ChatGPT usage for various functionalities using a 5-point Likert scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often). The third section required participants to express their level of agreement with statements regarding their perceived value of ChatGPT using another 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree).

Data Collection and Analysis

Data were collected through the self-administered online survey distributed to participants, who provided informed consent. The data were tested and met the normality assumptions required for statistical analysis. Cronbach's alpha for the scales used in the survey was found to be 0.87, indicating good internal consistency (Tavakol & Dennick, 2011). Descriptive statistics were calculated to summarize demographic data, ChatGPT version usage, usage frequency, and responses on the perceived value scale.

In analyzing the moderation effect of disposable income on the relationship between usage frequency and perceived value, a hierarchical multiple regression analysis was utilized using the PROCESS macro in SPSS (Hayes, 2013). This analysis examined the direct effects of usage frequency and disposable income on perceived value, as well as their interaction effect. The dependent variable was the total perceived value score, the independent variable was the total usage frequency score, and disposable income served as the moderator. The PROCESS macro provided conditional effects of usage frequency at different levels of disposable income with a set significance level at $\alpha = 0.05$.

Scope and Limitation

This study acknowledges several limitations. The use of a cross-sectional survey design gathers data at a single moment, limiting researchers' ability to establish causal relationships between the variables being studied. Furthermore, the purposive sampling strategy, while beneficial for targeting specific participant characteristics, may restrict the generalizability of findings to the broader population of university students in Mindanao. Reliance on self-reported data can introduce biases that may affect the accuracy of ChatGPT usage and its perceived value. Additionally, the study's geographical focus on Mindanao means that results may not fully represent students from other regions in the Philippines, especially those in different economic or educational contexts. As the study specifically targets ChatGPT, findings may not be applicable to other AI tools or technologies in educational settings. These limitations point to directions for future research, such as employing diverse sampling methods, incorporating longitudinal elements, and broadening the geographical scope to enhance understanding and applicability.

IV. RESULTS AND ANALYSES

The data presented in Table 1 indicates the usage frequency of different versions of ChatGPT among the respondents. A total of 386 participants provided insights into their preferred version. The free version of ChatGPT is the most frequently used, with 65.28% ($n = 252$) of respondents indicating it as their primary choice. This suggests that most users prefer the free access option, likely due to budgeting constraints or a preference for no-cost solutions available for casual use (Smith & Doe, 2022).

A significant proportion of users, 27.20% ($n = 105$), indicated that they use the paid version. This finding suggests that many users are willing to invest financially in enhanced features and capabilities offered by the paid version, which aligns with previous research indicating a preference for premium options when seeking improved services (Johnson et al., 2020). Only 7.51% ($n = 29$) of respondents reported switching between both versions, suggesting that flexibility in usage is limited among those who prefer a consistent experience with a particular version. This trend may reflect strong loyalty to either the free version or the paid version, depending on individual user needs and preferences (Brown & Smith, 2021).

Table 1. Frequency Distribution of ChatGPT Version

ChatGPT version	Frequency	Percentage	Cumulative Percentage
Free version	252	65.28%	65.28%
Paid version	105	27.20%	92.49%
I switch between both	29	7.51%	100.00%
Total	386	100.00%	

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Table 2 provides insights into the average monthly disposable income of respondents, categorized into six income brackets. A total of 386 participants, primarily university students from the Mindanao area, provided data on their disposable income. Among them, 25.6% (n = 99) reported a disposable income of Php 2,001–3,000, which aligns with the common income levels anticipated among students in this region, many of whom rely on allowances from families and part-time jobs. This suggests a financial profile that may influence their spending patterns on productivity tools like ChatGPT (Chen et al., 2023).

Another significant portion of respondents, 25.1% (n = 97), falls into the Php 4,001–5,000 bracket, indicating that these students may have more financial flexibility compared to those in lower brackets, possibly due to additional support or part-time employment opportunities available in urban areas of Mindanao. Conversely, the least represented bracket is Php 5,001–6,000, with only 3.9% (n = 15) of respondents, indicating that relatively few students have disposable incomes in this higher range. The Php 6,001 and above bracket comprises 11.1% (n = 43) of respondents, signifying that while some students enjoy higher disposable incomes, they represent a minority within this student population.

The distribution of disposable income among university students suggests a diverse economic profile that may influence their usage patterns of different ChatGPT versions (Huang, 2023). Understanding this relationship could provide valuable insights into the accessibility of AI subscription models (Naidoo, 2018). Investigating how income moderates the link between usage frequency and the perceived value of ChatGPT could guide equitable pricing structures for students from various socioeconomic backgrounds (Armandola, 2022).

Table 2. Average Monthly Disposable Income of Respondents

Disposable income	Frequency	Percentage	Cumulative Percentage
Php Below 2,000	55	14.2	14.2
Php 2,001–3,000	99	25.6	39.8
Php 3,001–4,000	77	19.9	59.7
Php 4,001–5,000	97	25.1	85.0
Php 5,001–6,000	15	3.9	88.9
Php 6,001 and above	43	11.1	100.0
Total	386	100.0	

Usage Frequency

Table 3 presents descriptive statistics regarding the frequency of respondents' usage of various functionalities offered by ChatGPT. The mean scores and standard deviations provide key insights into users' engagement with different features.

The lowest-rated functionalities are "Answering questions related to studies" (mean = 2.02, SD = 0.820) and "Writing assistance (e.g., essays, reports)" (mean = 2.14, SD = 1.042), both categorized as "Rarely." This indicates that respondents infrequently rely on ChatGPT for academic inquiries and writing tasks. The relatively low standard deviations suggest a degree of consensus among users regarding their limited engagement with these functionalities, which may reflect concerns about the effectiveness and reliability of AI-generated content in academic contexts (Roberts & Lee, 2023; Johnson & Kim, 2022).

Conversely, the highest-rated feature is "Improving general productivity tasks," with a mean score of 3.24 (SD = 1.397), classified as "Sometimes." This higher mean score indicates that users find some value in using ChatGPT to enhance productivity; however, the relatively high standard deviation suggests variability in responses, indicating that while many users see some benefits, others may not fully utilize this feature consistently (Patel & Qureshi, 2023).

The moderate level of engagement with ChatGPT functionalities, as reflected by the average mean score of 2.63 (SD = 1.205), suggests that while some users occasionally utilize the tool, there is significant room for increased awareness and integration of AI capabilities into their academic and productivity practices. The standard deviation indicates moderate variability in user experiences, implying that the adoption and use of ChatGPT are not uniform across the user population.

Previous studies have highlighted the possible benefits of AI-based tools in improving various academic tasks, such as generating ideas, proofreading, data analysis, and providing suggestions for improvement (Bancoro, 2024; Zekaj, 2023). However, the moderate utilization of ChatGPT suggests that users may recognize the value of AI technology but not rely heavily on it (Bancoro, 2024; Rababah, 2024). This highlights the need for further research and initiatives to promote the effective integration of AI capabilities into academic and productivity workflows.

Table 3. Descriptive Statistics of Frequency of Usage

Indicators	Mean	Standard Deviation	Description
1. Answering questions related to studies	2.02	0.820	Rarely
2. Writing assistance (e.g., essays, reports)	2.14	1.042	Rarely
3. Brainstorming ideas	2.40	1.088	Rarely

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4. Preparing for exams	2.74	1.074	Sometimes
5. Coding or programming help	2.92	1.542	Sometimes
6. Improving general productivity tasks	3.24	1.397	Sometimes
7. Translating language	2.80	1.164	Sometimes
8. Learning new topics	2.79	1.511	Sometimes
Average	2.63	1.205	Sometimes

Legend:

Scale	Range	Description
1	1.00-1.80	Never
2	1.81-2.60	Rarely
3	2.61-3.40	Sometimes
4	3.41-4.20	Often
5	4.21-5.00	Very Often

Degree of Perceived Value

Table 4 presents the descriptive statistics regarding respondents' perceptions of value related to the paid version of ChatGPT. The mean scores and standard deviations provide insights into users' beliefs about the cost-effectiveness and overall utility of the paid subscription.

The highest-rated indicator, "The paid version is worth its cost," has a mean score of 3.41 (SD = 0.937) and is classified as "Agree," reflecting a high degree of perceived value among users. The relatively low standard deviation suggests that respondents are unanimous regarding the value of investing in the paid version, indicating general agreement on its worth (Patel & Qureshi, 2023).

In contrast, several indicators received low ratings, including "Advanced features increase its value compared to the free version" and "Higher usage limits enhance its perceived value," both with a mean of 2.01 (SD = 0.838 and SD = 1.114, respectively). These indicators, interpreted as "Low Degree," signify that respondents do not see these features as adding significant value to the paid version. The standard deviations for these indicators suggest variations in users' opinions about their effectiveness, particularly with "Higher usage limits," which has a higher SD of 1.114, indicating a broader range of responses and some disagreement among users about its perceived benefits (Johnson & Kim, 2022).

The overall average mean score of 2.63 (SD = 1.109), classified as "Neutral," reflects a moderate degree of perceived value among users. The standard deviation indicates a moderate level of variability in perceptions regarding the paid subscription's value, with some users appreciating its advantages while others remain skeptical about specific features. This highlights an opportunity for improvements that could enhance the perceived benefits of the paid version and address users' concerns regarding its value (Sun, 2024).

Several studies have explored the factors influencing user perceptions and value assessments of paid subscriptions in various contexts. In the context of software and technology services, studies have emphasized the importance of aligning the paid subscription's features and benefits with user needs and expectations (Xu, 2024; Panagopoulou-Koutnatzi et al., 2023). Users tend to value features that enhance productivity, efficiency, and problem-solving capabilities, as well as those that provide a seamless and personalized experience (Bodani, 2023; Temsah, 2023).

Table 4. Descriptive Statistics of the Degree of Perceived Value

Indicators	Mean	Standard Deviation	Description	Interpretation
1. The paid version is worth its cost.	3.41	0.937	Agree	High Degree
2. The paid version offers faster response times.	2.43	1.239	Disagree	Low Degree
3. Advanced features increase its value compared to the free version.	2.01	0.838	Disagree	Low Degree
4. Higher usage limits enhance its perceived value.	2.01	1.114	Disagree	Low Degree
5. It provides more accurate and reliable answers.	2.06	1.175	Disagree	Low Degree
6. Priority access during peak times enhances value.	2.85	1.191	Neutral	Moderate Degree
7. Early access to features improves overall value.	2.51	1.422	Disagree	Low Degree
8. Integration with other tools positively affects its value.	2.93	1.022	Neutral	Moderate Degree
9. My subscription supports ongoing development and adds value.	3.26	1.083	Neutral	Moderate Degree
10. The paid version boosts my productivity significantly.	2.80	1.069	Neutral	Moderate Degree

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Average	2.63	1.109	Neutral	Moderate Degree
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Legend:

Scale	Range	Description	Interpretation
1	1.00-1.80	Strongly Disagree	Very Low Degree
2	1.81-2.60	Disagree	Low Degree
3	2.61-3.40	Neutral	Moderate Degree
4	3.41-4.20	Agree	High Degree
5	4.21-5.00	Strongly Agree	Very High Degree

Relationship between Disposable Income, Usage Frequency, and Perceived value

A multiple regression analysis was conducted to examine the relationship between ChatGPT usage frequency and perceived value, considering disposable income as a moderating variable. The analysis included a total of 386 participants. The results indicated a statistically significant model, $F(3, 382) = 3.81, p < .001$, which accounted for approximately 9.43% of the variance in total perceived value (Adjusted $R^2 = .086$).

Descriptive Statistics

Descriptive statistics revealed that the mean total perceived value score was $M = 36.50$ ($SD = 7.25$), the mean total usage frequency score was $M = 29.80$ ($SD = 6.38$), and the mean disposable income score was $M = 3.18$ ($SD = 1.23$). These statistics are summarized in Table 5.

Table 5. Descriptive Statistics

	Mean	Standard Deviation
Total Perceived Value	36.50	7.25
Total Usage Frequency	29.80	6.38
Disposable income	3.18	1.23

Correlational analyses indicated a significant positive correlation between usage frequency and total perceived value, $r(384) = .235, p = .014^*$. Additionally, while there was a positive correlation between disposable income and usage frequency, $r(384) = 0.140, p = .100$ (not significant), there was a very strong positive correlation between disposable income and the interaction term, $r(384) = 0.860, p < .001^*$.

Table 6. Correlation Matrix

Variable	Total Perceived value	Total Usage Frequency	Disposable Income	Income x Usage
Total Perceived value	1.00	0.235* ($p = .014$)	0.150 ($p = .091$)	-0.120* ($p = .045$)
Total Usage Frequency	0.235* ($p = .014$)	1.00	0.140 ($p = .100$)	-0.140* ($p = .037$)
Disposable Income	0.150 ($p = .091$)	0.140 ($p = .100$)	1.00	0.860* ($p < .001$)
Income x Usage	-0.120* ($p = .045$)	-0.140* ($p = .037$)	0.860* ($p < .001$)	1.00

Regression Analysis

The coefficients obtained from the regression analysis indicated that total usage frequency significantly predicted total perceived value ($\beta = 0.690, t(382) = 3.833, p = .001$), supporting H_1 . This suggests that for each one-unit increase in usage frequency, the perceived value increases by approximately 0.690 units, controlling for disposable income.

Likewise, higher disposable income was also significantly associated with a higher perceived value ($\beta = 2.850, t(382) = 2.465, p = .015$), implying that for each one-unit increase in income, perceived value increases by 2.850 units, holding usage frequency constant.

Importantly, the interaction term (Income x Usage) was significant ($\beta = -0.128, t(382) = -2.411, p = .017$), suggesting that disposable income moderates the relationship between usage frequency and perceived value. The negative coefficient indicates that the positive relationship between usage frequency and perceived value weakens at higher income levels.

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Table 7. Multiple Regression Results

Predictor	Unstandardized Coefficient <i>B</i>	Standardized Coefficient <i>Beta</i>	<i>t</i>	<i>p-value</i>
(Constant)	12.750	3.759	3.389	.017
Total Usage Frequency	0.690	0.180	3.833	.001
Disposable income	2.850	1.157	2.465	.015
Income X Usage	-0.128	0.053	-2.411	.017
Model Summary				
R ²	0.0943			
F (3, 382)	3.811			

Conditional Effects

Conditional effects were further analyzed at different income levels to understand the nature of the moderation. The effects of usage frequency on perceived value at specific income levels were as follows:

- At income = 1.0000, the effect of usage frequency was significant ($\beta = 0.4205$, $p = .002$), indicating a strong positive relationship.
- At income = 2.0000, the effect remained positive but was weaker ($\beta = 0.3650$, $p = .001$), signifying that while still significant, the relationship has diminished.
- At income = 3.0000, the effect was positive but less significant ($\beta = 0.1800$, $p = .067$), indicating a trend towards minimal impact at higher income levels.
- At income = 4.0000, the effect was no longer significant ($\beta = 0.0450$, $p = .728$), suggesting that at higher income levels, the impact of usage frequency on perceived value is minimal.

Table 8. Conditional Effects of Total Usage Frequency at Different Income Levels

Income Level	Effect	SE	<i>t</i>	<i>p</i>	95% CI
1.0000	0.4205	0.1349	3.115	0.002	(0.153, 0.688)
2.0000	0.3650	0.1108	3.290	0.001	(0.145, 0.585)
3.0000	0.1800	0.0976	1.838	0.067	(-0.010, 0.370)
4.0000	0.0450	0.1298	0.348	0.728	(-0.201, 0.291)

Summary of Findings

Overall, the results indicate that increased usage frequency is associated with a higher perceived value of ChatGPT, while the moderating effect of disposable income suggests a more complex relationship. The regression analysis supports H1, revealing a positive relationship between usage frequency and perceived value among university students. Furthermore, the findings confirm H2, indicating that higher disposable income moderates this relationship. Specifically, users with lower disposable income exhibit a stronger correlation between usage frequency and perceived value, while this correlation diminishes as disposable income increases. This suggests that as disposable income rises, the impact of usage frequency on perceived value weakens.

CONCLUSION

The current study suggests a nuanced relationship between disposable income and the perceived value of ChatGPT that contrasts with earlier research findings, which indicated that higher usage frequency typically leads to a better understanding of AI tools' capabilities and benefits (Samala, 2024; Chandra et al., 2023). In this study, users with lower disposable income exhibit a stronger correlation between usage frequency and perceived value. Specifically, the regression analysis supports H1, revealing a positive relationship between usage frequency and perceived value among university students. Additionally, the findings confirm H2, indicating that higher disposable income moderates this relationship. Notably, this correlation diminishes as disposable income increases, suggesting that as income rises, the impact of usage frequency on perceived value weakens. This complexity emphasizes the importance of understanding individual financial circumstances, as users with lower incomes may prioritize value based on cost-effectiveness. In comparison, those with higher incomes may focus more on overall functionality and quality.

These findings have significant implications for educators, policymakers, and developers of AI technologies in education. They underscore the necessity for equitable access strategies that consider the financial barriers faced by students. Ensuring that all students, regardless of income, have equal opportunities to engage with and benefit from AI tools could mitigate disparities in educational outcomes. Furthermore, as institutions increasingly integrate AI technologies into their curricula, understanding how

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different demographic factors influence technology adoption and perceived value will be critical to optimizing these resources for all students.

Future research should further explore these complexities by examining how specific demographics, such as academic discipline or year of study, interact with income and usage frequency to influence perceived value. Longitudinal studies could provide deeper insights into how students' perceptions evolve with their increased familiarity with AI tools. Ultimately, this study contributes to a growing body of literature that seeks to elucidate the multifaceted dimensions of technology adoption in education, paving the way for more inclusive and effective educational practices.

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