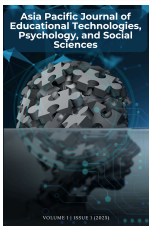
APJETPSS Volume 1 Issue 1 | E-ISSN: 3082-4052 | DOI: https://doi.org/10.70847/610010

Asia Pacific Journal of Educational Technologies, Psychology, and Social Sciences

Journal Homepage: https://ijmshe.com/index.php/apjetps



Research Article

The Use of ChatGPT and Academic Procrastination of College Students

Bianca Eunice C. Palma Gil [1] | Christine Mae D. Laxina [2] | Adriel Frankie S. Sombilon [3] | Novy Mae E. Cabangal [4] | Marianne Lois Lane E. Lobo [5] | Gleen D. Silat [6] | Rey B. Atacador [7] | Rayven Oroc [8] | Giovanni Udtohan [9]

[1-9] University of Mindanao, Davao City, 8000, Philippines

Article Info

Article history:

Received: 02 January 2025
Revised: 20 March 2025
Accepted: 09 April 2025

Keywords:

Academic Procrastination, Artificial Intelligence, Philippines

Abstract

This quantitative-correlational study investigates the relationship between the use of ChatGPT and academic procrastination among college students in Davao City, Philippines. Using adapted questionnaires, the data was gathered via Google Forms, with 205 university-level participants participating in this research and the respondents selected using a random sampling technique. The measurement model was subjected to validity and reliability tests, and the study's concept was described using descriptive analysis. The scale demonstrates internal consistency reliability with Cronbach's $\alpha = 0.882$ and McDonald's $\omega = 0.899$. Moreover, the findings revealed that the constructs of the study are valid and reliable. The following factors of ChatGPT: Participants' perception or understanding of ChatGPT (PPU), Participants' attitude towards actual practice in using ChatGPT (PAT), and Participants' perceptions regarding the advantages of ChatGPT (PPR) all produce significant factor loadings ($p < .001$) and exceed the acceptable threshold of 0.3. Finally, the study reveals the nuanced relationship between ChatGPT usage and academic procrastination among college students. While ChatGPT improves productivity through instant information access, generating ideas, and learning support, it may nurture procrastination behaviors based on its use as a last resort and thus foster dependency, undermining critical thinking and deep engagement with course material. These findings imply that educators or policymakers must develop strategies on mitigating potential dependency while enhancing learning outcomes.

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Introduction

Academic procrastination - the habit of delaying work with academic-related tasks to the extent that delays become detrimental to performance - represents a substantial, personal, systemic, and societal problem within society. Other definitions of academic procrastination as it occurs in different fields include putting off tasks or failing to finish them (Aznar-Diaz et al., 2020) or delaying academic studies purposefully (Schraw et al., 2007; Zhang et al., 2022). It can also be described as a failure of self-regulation, incapability of supervising, regulating, and playing with the preferred criteria for controlling impulses, emotions, task performance, and thoughts (Bytamar et al., 2020). Researchers in both the Psychological and Educational fields have amassed significant research on the motivations of habit, its results, and its nature (Alaya et al., 2021). A recent study into the matter has investigated the trends on the topic and has revealed that academic procrastination significantly threatens students' academic development and ensuing success (González-Brignardello et al., 2023).

The rise and development of technology has also influenced these trends. The rise of AI in education raises concerns about academic integrity, particularly regarding plagiarism. (Reuters, 2023), with a recent study revealing that AI significantly impacts human laziness and the loss of human decision-making (Ahmad et al., 2023). Further studies conclude that with reliance on AI, students are prone to experience memory loss and are thus susceptible to problems in time management, resulting in procrastination (Abbas et al., 2024; Belleza-Torrejón et al., 2024).

This study aims to analyze the relationship between academic procrastination and the usage of AI chatbots such as ChatGPT. The academic field dramatically relies on the advancement of technology. These technologies offer the potential to open doors and build bridges by expanding access to quality education, facilitating communication between educators, students, and families, and alleviating friction across various educational contexts from early childhood through adulthood (Escueta et al., 2020). However, the recent advancement of AI technology and the emergence of AI chatbots brings a new factor to consider regarding academic procrastination. A recent study has proven there exists a current relationship between the usage of AI and higher education. The researchers of this study reported positive attitudes toward ChatGPT and a solid inclination to incorporate it into the learning process, making a compelling case for its adoption in education; the data presented highlights the fact that students have a solid propensity for incorporating generative artificial intelligence technologies, particularly ChatGPT, into their learning and educational practices; particularly noteworthy is that participants demonstrate a solid willingness to incorporate AI into the classroom (Escueta et al., 2020). Thus, with an established connection between AI chatbot usage and the education system, we may also assume a relationship exists between AI chatbot usage and academic procrastination.

Theoretical Framework

Temporal Motivation Theory

Academic procrastination is often associated with multiple negative impacts on students, including diminished academic performance and adverse effects on students' overall well-being (Balkıs & Duru, 2016; González-Brignardello et al., 2023). Hence, Temporal Motivation Theory (TMT) suggests that procrastination arises from a complex interplay of crucial components:

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

value, expectancy, and impulsiveness (Steel et al., 2018). As deadlines are near, students may experience increased pressure, resulting in task aversions due to the feeling of being overwhelmed with tasks significantly linked to increased academic procrastination (Syahrial et al., 2022). Additionally, when the perceived value of academic tasks is low, students may prioritize immediate rewards, leading to procrastination (Wang et al., 2021). The ability of ChatGPT to provide immediate rewards, such as instant answers, overshadows the expected long-term value of developing academic skills when relying on one's capabilities to complete tasks alone. These factors collectively create a cycle where procrastination exacerbates stress and hampers academic success. The TMT theory is predominantly used to explain why students do not engage but postpone their learning activities (Steel, 2007; Steel & Klingsieck, 2016).

While AI chatbots can support students by providing timely reminders and gathering resources, they can also have adverse effects. Examples include the immediate satisfaction from a chatbot, which would encourage and reinforce procrastination behaviors. It is such convenience that getting answers is far more accessible than the effort required for investment in the expectation of engaging them with their studies more meaningfully. According to the study of Parsakia (2023), dependency on technology decreases a student's perceived locus of control and self-efficacy, which are essential elements of expectancy according to the TMT framework. Moreover, the more students rely on chatbots and doubt their capabilities, the less they can count on their skills, leading to increased impulsivity and further continuing the cycle of procrastination. While chatbots can be user-friendly because they provide quick feedback, they encourage users to prioritize convenience over having a meaningful way of learning and finishing tasks. TMT, therefore, underlines the double nature of AI technologies in education: where these technologies can offer potential support, they may reinforce procrastination if not used with due care.

Materials and Methods

This study utilizes a quantitative research design, explicitly employing the correlational approach to evaluate and explore the relationship between the usage of ChatGPT and academic procrastination among college students. According to Creswell & Creswell (2023), quantitative research gathers, examines, and understands data, usually acquired through surveys. This approach examines the relationship between variables using instruments wherein numbered data are provided for statistical analysis. Furthermore, two hundred university students from Davao City, Philippines, who have experience using ChatGPT for academic purposes, were included in the study. A random sampling technique was employed among the target population because it ensures that the members have an equal chance of being selected (Thomas, 2020), ensuring that the respondents represent a cross-section of the population. Through a thorough knowledge of the usage of ChatGPT and its influence on academic procrastination among college students, this technique seeks to improve the generalizability and reliability of the study's findings by acquiring a highly representative sample.

Furthermore, data were gathered using an online survey questionnaire with close-ended questions from McCloskey's Academic Procrastination Scale (APS) (2011). Another survey questionnaire with close-ended questions was adopted from Obenza et al. (2023) for the usage of ChatGPT. It facilitates a more manageable quantitative analysis of the gathered data, which contributes to the comprehensiveness and dependability of the study's findings.

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Additionally, a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was used to capture the level of the respondents' agreement and disagreement with the provided statements. The scale was organized as follows: A score of 5 indicates strong agreement with the offered statement, a score of 4 indicates high agreement, a score of 3 indicates moderate agreement, a score of 2 indicates disagreement and a score of 1 indicates extreme disagreement. This extensive explanation of the Likert scale guarantees that the participants fully understood the options and could express their opinions effectively and efficiently to facilitate an in-depth assessment of the respondents' encounters with AI tools like ChatGPT. Hence, this enhances the accuracy and reliability of the responses, allowing a robust analysis of the respondents' experiences and perceptions of AI, such as ChatGPT.

In addition, the adopted questionnaires' validity and reliability were tested through the Jamovi Software 2.0, and their reliability and internal consistency were assessed using Cronbach's alpha and McDonald's ω. Cronbach's alpha values that indicate a satisfactory level of internal consistency of each factor or indicator varied from 0.709 to 0.937. Satisfactory reliability was shown through Cronbach's alpha values ≥ 0.70 (Taber, 2018). A power analysis was performed before the data collection using a G*Power 3.1.9.6 (Faul et al ., 2007). Obtaining 80% power to detect a medium effect ($f2 = 0.15$) at a significance level of $\alpha = 0.05$ required a minimum sample size of $N = 89$. The study's sample size of $N = 200$ was higher than the minimum requirement, strengthening its ability to explore the relationship between the variables. Jamovi software version 2.0 was used to compute the descriptive statistics, including standard deviation and mean, to describe AI chatbots and procrastination. A bootstrapping standardized algorithm was applied by SmarPLS 4.0 software to evaluate the postulated moderation model. The study explores the relationship between the usage of ChatGPT and college students' procrastination using various approaches.

Results and Discussions

The scale demonstrates excellent internal consistency reliability with Cronbach's $\alpha = 0.882$ and McDonald's $\omega = 0.899$. Both values are above the acceptable range of 0.700; according to Cortina (1993), Cronbach's α general rule of thumb is that a Cronbach's alpha of .70 and above is acceptable, .80 and above is better, and .90 and above is best. At the same time, the acceptable range of McDonald's ω is values greater than 0.700 (McDonald, 2013). These values confirm the robustness of the measurement tool in capturing the constructs related to ChatGPT usage and academic procrastination. Bartlett's Test of Sphericity ($\chi^2(703) = 5691$, $p < .001$) indicates that the correlation matrix is not an identity matrix and is thus suitable for factor analysis. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, with an overall value of 0.927, suggests that the sample size is more than adequate for conducting reliable analyses.

Table 1. Reliability Analysis and Assumption Checks

Scale Reliability Statistics		
	Cronbach's α	McDonald's ω
	0.882	0.899
Bartlett's Test of Sphericity		

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

	χ^2	p
	5691	<.001
KMO Measure of Sampling Adequacy (MSA)		0.927

The following data represents the result of an online survey conducted with 205 university students in Davao City. The survey focused on gathering data on factors such as Academic Procrastination, Participants' perception or understanding of ChatGPT (PPU), Participants' attitude toward actual practice in using ChatGPT (PAT), and Participants' perceptions regarding the advantages of ChatGPT (PPR).

The data gathering was successful, with the number of participants yielding sufficient reliability where factor loadings for all indicators are significant ($p < .001$) and exceed the acceptable threshold of 0.3, thus confirming strong construct validity (Aguinis et al., 2019). For instance, items under Factor 1 (Academic Procrastination), such as AP14 and AP17, exhibit exceptionally high loadings (0.928), indicating that these items strongly represent the underlying construct and thus indicate high internal consistency (Cho & Kim, 2014). Factor 4 (Perceived Productivity with ChatGPT) has items such as PPR2 and PPR3 with loadings exceeding 0.9, reflecting the precision with which these items measure perceived productivity. Notably, while AP1 exhibits the lowest loading with a value of 0.386, it is still within the acceptable range, with the minimum value being 0.300.

Table 2. Factor Analysis

Factor	Indicator		Estimate	SE	Z	p
Academic Procrastination	AP1	I usually don't allocate time to review and proofread my work.	0.386	0.066	5.830	<.001
	AP2	I put off projects until the last minute.	0.741	0.063	11.760	<.001
	AP3	I have found myself waiting until the day before to start a big project.	0.760	0.067	11.370	<.001
	AP4	I know I should work on school work, but I just don't do it.	0.830	0.071	11.760	<.001
	AP5	When working on schoolwork, I usually get distracted by other things.	0.672	0.069	9.790	<.001
	AP6	I waste a lot of time on unimportant things.	0.723	0.073	9.980	<.001
	AP7	I get distracted by other, more fun, things when I am supposed to work on schoolwork.	0.747	0.068	11.050	<.001
	AP8	I don't concentrate on school work and focus on other distractions.	0.876	0.063	14.000	<.001
	AP9	I can't focus on school work or projects for more than an hour until I get distracted.	0.864	0.070	12.350	<.001
	AP10	My attention span for schoolwork is very short.	0.823	0.070	11.780	<.001
	AP11	Test are meant to studied for just a night before.	0.713	0.077	9.300	<.001
	AP12	I don't feel well prepared for most tests.	0.682	0.065	10.570	<.001
	AP13	"Cramming" and last minute studying is the best way that I study for a big test.	0.843	0.075	11.310	<.001
	AP14	I don't allocate time so I have to "cram" at the end of the semester.	0.928	0.062	14.950	<.001
	AP15	I only study the night before exams.	0.861	0.075	11.500	<.001
	AP16	If an assignment is due at midnight, I will work on it until 11:59.	0.718	0.076	9.420	<.001
	AP17	When given an assignment, I usually put it away and forget about it until it is almost due.	0.928	0.072	12.890	<.001
	AP18	Friends usually distract me from schoolwork.	0.619	0.077	8.020	<.001
	AP19	I find myself talking to friends or family instead of working on school work.	0.620	0.072	8.600	<.001

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

	AP20	On the weekends, I make plans to do homework and projects, but I get distracted and hang out with friends.	0.709	0.071	10.010	<.001
	AP21	I tend to put off things for the next day.	0.815	0.065	12.460	<.001
	AP22	I don't spend much time studying school material until the end of the semester.	0.910	0.061	14.930	<.001
	AP23	I frequently find myself putting important deadlines off.	0.752	0.062	12.150	<.001
	AP24	If I don't understand something, I'll usually wait until the night before a test to figure it out.	0.847	0.071	11.960	<.001
	AP25	I don't read the textbook and look over notes before coming to class and listening to a lecture or teacher.	0.748	0.070	10.660	<.001
Participants' perception or understanding of ChatGPT (PPU)	PPU1	I find using ChatGPT to be simple and convenient.	0.696	0.058	12.060	<.001
	PPU2	I believe ChatGPT can help me learn more effectively.	0.876	0.059	14.940	<.001
	PPU3	Learning with ChatGPT is enjoyable.	0.836	0.063	13.350	<.001
	PPU4	I feel that I can easily understand the content provided by ChatGPT.	0.794	0.063	12.700	<.001
	PPU5	I am willing to invest time and effort to better utilize ChatGPT for learning in the future.	0.887	0.065	13.630	<.001
	PPU6	I expect to use ChatGPT frequently for learning in the future.	0.796	0.067	11.890	<.001
Participants' attitude towards actual practice in using ChatGPT (PAT)	PAT1	I use ChatGPT to improve my interest and motivation in learning.	0.711	0.078	9.130	<.001
	PAT2	I use ChatGPT to improve my English communication skill (listening/speaking).	0.951	0.072	13.260	<.001
	PAT3	I use ChatGPT to improve my English reading and writing abilities (e.g. proofreading).	0.972	0.070	13.860	<.001
	PAT4	I use ChatGPT to help me gain a deeper understanding of the English language and culture.	0.946	0.070	13.460	<.001
Participants' perceptions regarding the advantages of ChatGPT (PPR)	PPR1	I think ChatGPT can help me improve the quality of my learning.	0.909	0.057	15.920	<.001
	PPR2	I believe ChatGPT can provide me with more learning opportunities.	0.965	0.061	15.810	<.001
	PPR3	I think ChatGPT can help me enhance my learning abilities.	0.947	0.062	15.270	<.001

The data presented in Table 3 reveals that mean scores for ChatGPT usage (M = 3.41, SD = 0.838), Participants' perceptions regarding its advantages (PPR, M = 3.44, SD = 0.989), and Participants' perception or understanding (PPU, M = 3.41, SD = 0.858) are notably high, suggesting a positive perception of ChatGPT's utility among students. The study of Ngo (2023) supports the data where students positively perceive the implementation of AI chatbots. In various studies, students found ChatGPT useful for academic purposes such as doing assignments, generating ideas, summarizing, paraphrasing, and proofreading (Črček & Patekar, 2023; Das & JV, 2024). Additionally, integrating AI specifically in research allows students to utilize its use for data collection, analysis, and experiments, enhancing efficiency and accuracy while fostering technological innovation and scientific development (Zhai, 2023; Obaid et al., 2023). Thus, students' attitudes and intentions toward using AI shape their perception of technology (Obenza et al., 2024)

However, the table contradicts Greitemeyer and Kastenmüller's (2024) view that the intention to use chatbot-generated texts for academic purposes was considered cheating. Some students might experience guilt while using ChatGPT, equating its assistance to cheating (Anders, 2023). Conversely, procrastination (M = 2.75, SD = 0.788) is moderate, reflecting varying tendencies to delay academic tasks. A study by Saxena and Chandra (2024) explores the academic procrastination behaviors of college students. The findings illustrate that college students showed moderate and

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

below-average academic procrastination supporting the study's findings.

Table 3. Descriptive Statistics

	N	Mean	SD	Description
Procrastination	205	2.75	0.788	Moderate
ChatGPT Usage	205	3.41	0.838	High
Participants' perception or understanding of ChatGPT (PPU)	205	3.41	0.858	High
Participants' attitude towards actual practice in using ChatGPT (PAT)	205	3.37	0.962	Moderate
Participants' perceptions regarding the advantages of ChatGPT (PPR)	205	3.44	0.989	High

As illustrated in Table 4, ChatGPT usage is positively correlated with students' perceptions regarding its advantages ($r = 0.933$, $p < .001$), students' attitudes towards its actual practice ($r = 0.881$, $p < .001$), and students' perception or understanding of ChatGPT ($r = 0.865$, $p < .001$). However, its correlation with procrastination is weaker but significant ($r = 0.302$, $p < .001$). These findings suggest that ChatGPT improves productivity and academic performance but modestly contributes to procrastination.

In alignment with the study of Jo (2024), students can achieve their goals and develop work capabilities by effectively utilizing the use of ChatGPT. AI chatbots, like ChatGPT, raise productivity in writing tasks as they significantly increase output quality by 18%, and decrease average time spent by 40% (Noy & Zhang, 2023). The influence of ChatGPT on higher education will lead to essential transformations in terms of assessment, information credibility, competence, ethical issues, and professional training (Raitskaya & Lambovska, 2023). A study by De La Puente et al. (2024) reveals that ChatGPT significantly improved students' understanding of complex concepts and developed critical thinking and argumentation skills.

However, AI could also affect students' procrastinating tendencies (Bouzar et al., 2024; Swargiary, 2023). An AI chatbot's capabilities to generate human-like text and provide instant responses to queries might encourage students to seek quick answers (Alshater, 2022; Rahman & Watanobe, 2023) without having an in-depth understanding and engagement with a more demanding cognitive process required for deep learning (Baker, 2019). These shortcuts that allow students to finish academic work with less effort will eventually make them habitual which may lead to student procrastination.

The strong intercorrelations among students' perceptions regarding the advantages of ChatGPT (PPR), attitudes towards actual practice in using ChatGPT (PAT), and perception or understanding of ChatGPT (PPU) indicate that these constructs collectively capture the benefits attributed to ChatGPT use in academic contexts.

Table 4. Correlation Analysis

		ChatGPT Usage	PPR	PAT	PPU
Academic Procrastination	df	203.0	203.0	203.0	203.0
	p-value	<.001	<.001	<.001	<.001
	Spearman's rho	0.325***	0.254***	0.291***	0.317***
	df	203.0	203.0	203.0	203.0
	p-value	<.001	<.001	<.001	<.001
	Kendall's Tau B	0.229***	0.184***	0.217***	0.228***
	p-value	<.001	<.001	<.001	<.001
	N	205.0	205.0	205.0	205.0

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Legend: PPR=Participants' perceptions regarding the advantages of ChatGPT; PAT=Participants' attitude towards actual practice in using ChatGPT; PPU=Participants' perception or understanding of ChatGPT

In Table 5, the regression analysis shows that ChatGPT usage is a significant predictor of procrastination ($\beta = 0.285$, $t = 4.52$, $p < .001$), accounting for 9.15% of the variance ($R^2 = 0.0915$). This result supports the study of Abbas et al. (2024) examining the causes and consequences of generative AI usage among university students, which states that students who used ChatGPT were more likely to have trouble with procrastination and memory loss, which harmed their academic attainment.

Nevertheless, the effect size seems small; it brings out that the usage of ChatGPT is, in a way, encouraging procrastination in certain situations, perhaps due to over-reliance on the tool or on its use for putting off tasks. This aligns with the study of Swargiary (2024), which states that the increased procrastination and absence of progress in academic performance among ChatGPT users could suggest that students are becoming reliant on the tool without evolving deeper cognitive skills. Bouzar et al. (2024) also suggest that as the usage of ChatGPT continues to expand, the rapidity of taking action on tasks decreases. This shows that students' reliance on the tool replaces their innate drive or regular study techniques. Over-reliance on AI can hinder the development of essential problem-solving and critical-thinking skills as students may become overly dependent on ChatGPT for answers, sacrificing their exploration and analysis (Hasanein & Sobaih, 2023). Hence, the intense involvement with AI is a contributing factor to how a student may utilize its use, potentially being over-reliant or mitigating the possibility of procrastinating (Obenza et al., 2024).

Table 5. Regression Analysis

Model Fit Measures							
				Overall Model Test			
Model	R	R^2	Adjusted R^2	F	df1	df2	p
1	0.302	0.0915	0.087	20.4	1	203	<.001
Model Coefficients - Procrastination							
Predictor	Estimate	SE	t	p			
Intercept	1.785	0.2208	8.08	<.001			
ChatGPT Usage	0.285	0.063	4.52	<.001			
Assumption Checks							
Collinearity Statistics							
		VIF	Tolerance				
ChatGPT Usage		1	1				

Theoretical Implications

The results align with the Temporal Motivation Theory (TMT), which illustrates that procrastination is affected by crucial components, particularly value, expectancy, and impulsiveness. Procrastinators are vulnerable to temptation, such as tempting activities, and to the temporal separation of intention and planned act (Steel et al., 2018; Siaputra, 2010). ChatGPT is perceived positively due to its ability to encourage productivity and influence academic

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

performance. However, it may also contribute to academic procrastination because of the potential over-reliance on the tool (Parsakia, 2023). Individuals will likely procrastinate with distant deadlines because AI chatbots can efficiently and effectively generate ideas within a shorter period (Syahrial et al., 2022). Furthermore, the support that ChatGPT gives reinforces procrastination behaviors as it efficiently provides answers, hence aligning with TMT's explanation wherein perceived reward, like task completion, is a factor that leads to delays. Additionally, over-reliance on artificial intelligence will lead to consistent and rising expectations of the capability of ChatGPT to generate academic tasks and create impulsive decision-making, knowing that the tool can accommodate last-minute demands, hindering one's self-efficacy and development of essential academic skills.

Summary and Conclusion

This study showed that the use of ChatGPT by college students is closely associated with academic procrastination, both its positive and negative sides. While ChatGPT improves productivity through instant information access, generating ideas, and learning support, it may nurture procrastination behaviors based on its use as a last resort and thus foster dependency, undermining critical thinking and deep engagement with course material. The interactive relationship here, then, is such that the increased use of ChatGPT in the academic field will further heighten levels of procrastination since a student may delay commencing the work to rush toward the AI. In this regard, stakeholders shall focus on guided integration of the tool into academic work, promote time management skills, and stimulate reflective practices to help students recognize how their technology use affects the learning process to maximize benefits from ChatGPT and minimize its unintended consequences. Addressing such challenges in advance will allow educators to create a well-rounded, efficient learning environment that plays to the strengths of AI while developing needed academic competencies.

Implications for Educational Practice

The findings have significant implications for educators, policymakers, and students. While ChatGPT demonstrates clear benefits in enhancing productivity, its potential to contribute to procrastination warrants the development of structured guidelines for its use. Educators should emphasize strategies that integrate ChatGPT as a complement to, rather than a substitute for, active learning. Thus, education systems must adapt to the current era of technology and construct new policies to regulate the use of ChatGPT and other Artificial Intelligence tools that could promote academic procrastination. This could involve encouraging the use of ChatGPT as supplementary support to generate ideas, therefore benefiting from its assistance while still being able to engage deeply with the activity. Additionally, designing assignments that require critical thinking and creative input can enhance active learning to develop academic skills while minimizing the risk of over-reliance on AI tools.

Training programs on effective time management and self-regulation could help students harness ChatGPT's benefits without succumbing to procrastination. Institutions could also explore incorporating curriculums that prohibit ChatGPT altogether and promote active and passive skill learning and enhancement to strengthen individual students' academic skills further, thus removing the possibility of academic procrastination.

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Direction for Future Research

Future studies could explore the long-term effects of ChatGPT usage on academic skills through a longitudinal approach. This approach could assess how artificial intelligence can influence students' skills over time, which includes academic skills such as written and verbal communication, data analysis, technical literacy, memory retention, etc. Furthermore, a comparative study could be conducted to compare several AI tools to identify which tools offer the most significant benefits and which may have a higher risk of fostering procrastination and other negative study habits. This may lead to developing strategies that mitigate dependency on AI and enhance student engagement in active learning.

Limitations of the Study

Despite the depth of prior research, the study relies on students' self-reported data concerning their ChatGPT usage and procrastination patterns. The respondents, particularly the university students of Davao City, Philippines might not accurately interpret their behavior, thus leading to social desirability bias or recall bias. During the survey, participants may experience recall bias due to forgetting or misremembering the frequency or duration of their ChatGPT usage or specific instances of procrastination. Furthermore, social desirability bias may influence the participants to understate their procrastination in regards to their academics, or overestimate their general usage of ChatGPT, especially if they perceive these behaviors are viewed negatively. These biases could also affect the data's accuracy and reliability, influencing the study's findings and conclusion. This study aims to evaluate the relationship between academic procrastination and ChatGPT usage among university students in Davao City. It aims to investigate whether the use of ChatGPT substantially impacts students' academic procrastination. Future research could mitigate this limitation by incorporating objective data, such as app usage analytics or observational approaches, to validate self-reported metrics.

References

Abbas, M., Jam, F. A., & Khan, T. I. (2024). Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students. International Journal of Educational Technology in Higher Education, 21(1). https://doi.org/10.1186/s41239-024-00444-

Aguinis, H., Vassar, M., & Wayant, C. (2019). On reporting and interpreting statistical significance and p values in medical research. BMJ Evidence-based Medicine, 26(2), 39–42. https://doi.org/10.1136/bmjebm-2019-111264

Ahmad, S. F., Han, H., Alam, M. M., Rehmat, M. K., Irshad, M., Arraño-Muñoz, M., & Ariza-Montes, A. (2023). Impact of artificial intelligence on human loss in decision making, laziness and safety in education. Humanities and Social Sciences Communications, 10(1). https://doi.org/10.1057/s41599-023-01787-8

Alaya, M., Ouali, U., Youssef, S., Aissa, A., &

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Nacef, F. (2021). Academic procrastination in university students: Associated factors and impact on academic performance. *European Psychiatry*, 64, S759 - S760. https://doi.org/10.1192/j.eurpsy.2021.2013.

Alshater, M. (2022). M. Exploring the role of artificial intelligence in enhancing academic performance: A case study of ChatGPT. SSRN. https://doi.org/10.2139/ssrn.4312358.

Anders, B. A. (2023). Is using ChatGPT cheating, plagiarism, both, neither, or forward thinking? Patterns, 4(3), 100694. https://doi.org/10.1016/j.patter.2023.100694

Aznar-Díaz, I., Romero-Rodríguez, J., García-González, A., & Ramírez-Montoya, M. (2020). Mexican and Spanish university students' internet addiction and academic procrastination: Correlation and potential factors. PLoS ONE, 15(5), e0233655. https://doi.org/10.1371/journal.pone.0233655

Baker, R. S. (2019). Educational data mining and learning analytics. International Encyclopedia of Education (3rd ed.), 230-238.

Balkıs, M., & Duru, E. (2016). Procrastination, self-regulation failure, academic life satisfaction, and affective well-being: underregulation or misregulation form.European Journal of Psychology of Education, 31, 439-459. https://doi.org/10.1007/S10212-015-0266-5.

Belleza-Torrejón, S. E., Aguilar, C. C. M., De La Cruz, N. M. P., Vásquez, E. M. G., & Quispe-López, J. M. (2024). The development of artificial intelligence as an influential factor in procrastination. International Journal of Religion, 5(10), 5461–5467. https://doi.org/10.61707/zjthpd48.

Bouzar, A., Idrissi, K. E., & Ghourdou, T. (2024). Investigating the Correlation between Different ChatGPT Versions and Task Initiation among Postgraduate Students: a Cross-Sectional Study. American Journal of Education and Technology, 3(2), 79–84. https://doi.org/10.54536/ajet.v3i2.2704

Bytamar, J. M., Saed, O., & Khakpoor, S. (2020). Emotion Regulation Difficulties and Academic Procrastination. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.524588

Cho, E., & Kim, S. (2014). Cronbach's Coefficient Alpha. Organizational Research Methods, 18(2), 207–230. https://doi.org/10.1177/1094428114555994

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. https://doi.org/10.1037/0021-9010.78.1.98

Črček, N., & Patekar, J. (2023). Writing with AI: University Students' Use of ChatGPT. Journal of Language and Education. https://doi.org/10.17323/jle.2023.17379

Creswell, J. W., & Creswell, J. D. (2023). Research design: "Qualitative, Quantitative, and Mixed Methods Approaches" (6th ed.). SAGE Publications.

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Das, S. R., & JV, M. (2024). Perceptions of Higher Education Students towards ChatGPT Usage. Das | International Journal of Technology in Education. https://www.ijte.net/index.php/ijte/article/view/583/pdf#

De La Puente, M., Torres, J., Troncoso, A. L. B., Meza, Y. Y. H., & Carrascal, J. X. M. (2024). Investigating the use of chatGPT as a tool for enhancing critical thinking and argumentation skills in international relations debates among undergraduate students. Smart Learning Environments, 11(1). https://doi.org/10.1186/s40561-024-00347-0

Escueta, M., Nickow, A. J., Oreopoulos, P., & Quan, V. (2020). Upgrading education with technology: Insights from Experimental Research. Journal of Economic Literature, 58(4), 897–996. https://doi.org/10.1257/jel.20191507

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behavior Research Methods, 39 (2), 175–191. https://doi.org/10.3758/bf03193146

González-Brignardello, M. P., Paniagua, A. S., & López-González, M. Á. (2023). Academic Procrastination in children and adolescents: A scoping review. Children, 10(6), 1016. https://doi.org/10.3390/children10061016

Greitemeyer, T., & Kastenmüller, A. (2024). A longitudinal analysis of the willingness to use ChatGPT for academic cheating: Applying the theory of planned behavior. Technology Mind and Behavior, 5(2), 1–8. https://doi.org/10.1037/tmb0000133

Hasanein, A. M., & Sobaih, A. E. E. (2023). Drivers and consequences of ChatGPT use in Higher Education: Key Stakeholder Perspectives. European Journal of Investigation in Health Psychology and Education, 13(11), 2599–2614. https://doi.org/10.3390/ejihpe13110181

Jo, H. (2024). From concerns to benefits: a comprehensive study of ChatGPT usage in education. International Journal of Educational Technology in Higher Education, 21(1). https://doi.org/10.1186/s41239-024-00471-4

McCloskey, J. (2011). Finally, my thesis on academic procrastination. MavMatrix. https://mavmatrix.uta.edu/psychology_theses/30/

McDonald, R. P. (2013). Test theory. In *Psychology Press eBooks*. https://doi.org/10.4324/9781410601087

Ngo, A. (2023). The Perception by University Students of the Use of ChatGPT in Education. International Journal of Emerging Technologies in Learning. (ijet). https://doi.org/10.3991/ijet.v18i17.39019

Noy, S., & Zhang, W. (2023). Experimental evidence on the productivity effects of generative artificial intelligence. Science, 381, 187 - 192. https://doi.org/10.1126/science.adh2586.

Obaid, O. I., Ali, A. H. & Yaseen, M. G. (2023). Impact of ChatGPT on Scientific Research: Opportunities, Risks, Limitations, and

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Ethical Issues. Iraqi Journal for Computer Science and Mathematics, 13–17. https://doi.org/10.52866/ijcsm.2023.04.04.002

Obenza, B. N., Caballo, J. H. S., Caangay, R. B. R., Makigod, T. E. C., Almocera, S. M., Bayno, J. L. M., Camposano, J. J. R., Cena, S. J. G., Garcia, J. A. K., Labajo, B. F. M., & Tua, A. G. (2024). Analyzing university students' attitude and behavior toward AI using the extended Unified Theory of Acceptance and Use of Technology Model. American Journal of Applied Statistics and Economics, 3(1), 99–108. https://doi.org/10.54536/ajase.v3i1.2510.

Obenza, B. N., Go, L. E., Francisco, J. A. M., Buit, E. E. T., Mariano, F. V. B., Cuizon Jr, H. L., Cagabhion, A. J. D., & Agbulos, K. A. J. L. (2024). The nexus between cognitive absorption and AI literacy of college students as moderated by sex. American Journal of Smart Technology and Solutions, 3(1), 32–39. https://doi.org/10.54536/ajsts.v3i1.2603.

Obenza, B., Salvahan, A., Rios, A. N., Solo, A., Alburo, R. A., & Gabila, R. J. (2023). University students' perception and use of ChatGPT: Generative Artificial Intelligence (AI) in Higher Education. International Journal of Human Computing Studies, 5 (12), 5-18. https://doi.org/10.31149/ijhcs.v5i12.5033

Parsakia, K. (2023). The effect of chatbots and AI on the self-efficacy, self-esteem, problem-solving and critical thinking of students. Health Nexus. https://doi.org/10.61838/hn.1.1.14.

Rahman, M. M., & Watanobe, Y. (2023). ChatGPT for education and research: Opportunities, threats, and strategies. Applied Sci-ences, 13(9), 5783. https://doi.org/10.3390/app13095783.

Raitskaya, L., & Lambovska, M. (2023). Prospects for ChatGPT Application in Higher Education: A scoping review of international research. Integration of Education. https://doi.org/10.15507/1991-9468.114.028.202401.010-021.

Reuters. (2023). Top French university bans use of ChatGPT to prevent plagiarism. Retrieved from https://www.reuters.com/technology/top-french-university-bans-use-chatgpt-prevent-plagiarism-2023-01-27/

Saxena, S., & Chandra, S. (2024). Academic procrastinating behaviours among college students. International Journal For Multidisciplinary Research. https://doi.org/10.36948/ijfmr.2024.v06i03.22026.

Schraw, G., Wadkins, T., and Olafson, L. (2007). Doing the things we do: A grounded theory of academic procrastination. J. Educ. Psychol. 99, 12–25. doi: 10.1037/0022-0663.99.1.12

Siaputra, I. B. (2010). Temporal motivation theory: Best theory (yet) to explain procrastination. Anima Indonesian Psychological Journal, 25(3), 206–214

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. Psychological Bulletin, 133(1), 65–94. https://doi.org/10.1037/0033-2909.133.1.65

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Steel, P., & Klingsieck, K. B. (2016). Academic procrastination: Psychological antecedents revisited. Australian Psychologist, 51(1), 36–46. https://doi.org/10.1111/ap.12173

Steel, P., Svartdal, F., Thundiyil, T. & Brothen, T. (2018). Examining procrastination across multiple goal stages: A longitudinal study of temporal motivation theory. Front Psychol. 2018 Apr 3;9:327. doi: 10.3389/fpsyg.2018.00327.

Swargiary, K. (2023). The impact of ChatGPT on student learning behavior: An experimental research study. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.4611213

Swargiary, K. (2024). Comparative study of cognitive engagement, procrastination, and academic performance. https://doi.org/10.13140/RG.2.2.16906.89287

Syahrial, M., Netrawati, N., Sukma, D., & Ardi, Z. (2022). Effect of task aversiveness and student academic procrastination. Jurnal Aplikasi IPTEK Indonesia. https://doi.org/10.24036/4.11692.

Taber, K.S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. Res Sci Educ 48, 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Thomas, L. (2020). An introduction to simple random sampling. Retrieved 19 January 2022, from https://www.scribbr.com/methodology/simple-random-sampling/

Wang, Y., Gao, G., Sun, C., Liu, J., & Fan, X. (2021). Academic procrastination in college students: The role of self-leadership. Personality and Individual Differences, 178, 110866. https://doi.org/10.1016/j.paid.2021.110866

Zhai, X. (2023). ChatGPT and AI: The Game Changer for Education. https://doi.org/10.13140/RG.2.2.31107.37923.

Zhang, X., Chen, K., Wang, M. & Chen, C. (2022) The relationship between academic procrastination and internet addiction in college students: The multiple mediating effects of intrusive thinking and depression-anxiety-stress. Psychology, 13, 591-606. doi: 10.4236/psych.2022.134040.

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph

Creative Commons Licensing Terms

[3]Corresponding Author: Bianca Eunice C. Palma Gil
[*]Corresponding Email: b.palmagil.560342@umindanao.edu.ph