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AI-Assisted Learning and Procrastination Patterns: An Exploratory Investigation of ChatGPT Usage in Higher Education

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Abstract: This exploratory pilot study investigates the potential relationship between ChatGPT usage and academic procrastination among EFL Master students. As AI tools become increasingly prevalent in educational settings, understanding their impact on student learning behaviours becomes crucial for digital pedagogy. Through a survey of 95 Master students at Ibn Khaldoun University of Tiaret, Algeria, this investigation examines students' self-reported ChatGPT usage patterns, procrastination levels, and perceptions of AI tools' influence on their academic habits. The exploratory approach reveals that while students recognize ChatGPT's utility for academic tasks, they also acknowledge its potential to facilitate procrastination behaviours. Findings suggest that moderate ChatGPT users demonstrate awareness of both benefits and risks associated with AI tool reliance. This preliminary investigation contributes to emerging discussions in digital education by providing initial insights into the complex relationship between AI assistance and self-regulated learning. The study offers a foundation for future research examining how educational institutions might develop frameworks for responsible AI integration while supporting student autonomy and critical thinking development.

Keywords: ChatGPT, AI tools, artificial intelligence in education, AIED, academic procrastination, critical thinking, memory retention, academic performance

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Introduction

In the past few years, there has been a revolution in the field of education caused by the advent of Artificial Intelligence. In consequence, learning methodologies have greatly changed through the inclusion of prevalent tools such as: ChatGPT in education. This latter, which is a generative AI model developed by Open AI provides human like generated texts which can be helpful in multiple academic tasks. It also has a chatting feature which later on results in a transcribed text that can be a source for note taking. ChatGPT providing a range of quick services is beneficial for students in many ways; hence, essay writing, paraphrasing and outlining became easy tasks that require few prompts and specific wording. However, the same beneficial features can make ChatGPT a double-edged sword as it can negatively impact students' motivation, acquired skills and their academic performance (Deng &Yu, 2023).

A number of studies in the field have discussed a growing rate of reliance on ChatGPT among learners, especially the ones struggling with academic workload and time pressure. There is a tendency for learners to delay their academic assignments; which is a result of ChatGPT's quick and easy execution contributing to the increase of procrastination. Additionally, many studies conclude that frequent use of ChatGPT is related to lack of cognitive effort, poor memory retention, increased levels of procrastination and decline of academic performance (Shabir et.al, 2024). Consequently, learners' engagement in critical thinking and autonomous learning is deteriorating by day which could lead to severely negative effects on their general knowledge retention and analytical skills.

Overall, the present article discusses the cause-and-effect relations between excessive usage of ChatGPT and academic procrastination. It explores how students' academic habits are affected through the 'illusion of ease' on their assignment completion and performance.

ChatGPT and Its Role in Learning

Since Open AI launched ChatGPT, it stood out as a sophisticated generative bot which is able to generate answers mimicking human like quality (Lock, 2022). The captivating thing about GPT is that it maintains conversations within context and not only random generation of responses (OpenAI, 2022). As an advanced AI model, GPT's popularity is snowballing due to its assistance capacity in academic tasks surpassing digital platforms like: Facebook or Instagram (Sier, 2022). Many claims also revolve around GPT revolutionizing traditional web searching platforms (Friedman, 2022).

Moreover, integrating Artificial intelligence in education brought along major changes in how learners approach learning. Tools like ChatGPT across the body of research have proved to be helpful in enhancing productivity and personalized learning providing services to refine students' works and offering instant feedback (Rahman *&* Watanobe, 2023*).* Research also discusses how GPT enhances students' engagement, satisfaction and learning outcomes (Winkler & Sollner, 2018).

On the other hand, many concerns are raised in the field of education regarding GPT's bias, privacy terms and validity of information it offers. Hence, scholars are divided on many ethical and pedagogical issues regarding AI in academia. Consequently, AI detectors have been introduced to identify AI generated works (Chechitelli, 2023), but it did not limit yet the widespread reliance of GPT and other AI models.

Understanding Academic Procrastination

Procrastination as a topic for research has a wide record across the various disciplines. It is a known and widespread issue in the field of education defined merely by the intentional postponement of academic assignments regardless of the negative outcome that it might generate (Svartdal & Løkke, 2022). Moreover, Ferrari and Diaz Moralez, (2014, p.1*)* explain the phenomenon as follows: "*It is associated with higher levels of stress and anxiety, weak impulse control, lack of persistence, lack of work discipline, lack of time management skill and the inability to work methodically*". Some of the contributing factors are purely psychological, as the quote denotes.

Similarly, Steel (2007) states that academic procrastination is the intentional delay of tasks like: presentation preparation, exam revision or assignment completion despite the negative consequences. Nowadays with the presence of external aid tools like GPT, procrastination grew uncontrollably bigger. Students now see no urgency to start their assignments early for they have the AI option ready to generate responses at any later stage before the

deadline. Hence, such behavior results in weaker academic performance and decreased cognitive engagement (Svartdal & Løkke, 2022).

ChatGPT as a Facilitator of Academic Procrastination

Recent research has raised growing concerns that the widespread use of ChatGPT may be fuelling academic procrastination by offering students rapid, easily accessible answers that reduce the immediate need for cognitive effort. As Imhof et al. (2023) point out, a central mechanism behind this phenomenon is what they term "*the illusion of ease*" – the perception that academic tasks are less demanding because ChatGPT can generate coherent and structured responses in seconds. This perception leads students to postpone engagement with assignments, relying on AI for last minute assistance.

While this may offer short-term relief, it often produces superficial outputs lacking the depth, critical thinking and reflective analysis typically required in higher education. This behaviour aligns closely with Steel's Temporal Motivation Theory (2007), which posits that procrastination results from dynamic interplay between expectancy, value, impulsiveness, and delay. GPT enhances the delay element by making it easier for students to postpone the initiation of tasks without facing immediate consequences. Moreover, GPT reduces another factor in procrastination which is aversiveness by offering quick solutions trespassing the discomfort of deep thinking and complex writing.

From the perspective of self-regulated learning, particularly Zimmerman's (2000) three-phase model of forethought, performance, and self-reflection. ChatGPT use can either support or undermine academic performance depending on how students incorporate it in their learning strategies. Students bypassing essential metacognitive processes through reliance on GPT may erode the development of autonomous learning skills.

In addition, Sweller's cognitive load theory (1998) offers another lens for analysis. While AI tools reduce extraneous cognitive load by simplifying tasks, they may also prevent students from engaging in germane processing which is the deep mental work needed for meaningful learning. Furthermore, Imhof et al. (2023) warn that frequent reliance on AI can negatively impact episodic and semantic memory functions leading to poorer long-term retention. The issue intersects with problems of about academic integrity, as ChatGPT may inadvertently encourage academic dishonesty by blurring the line between support and substitution. Some educators fear that GPT diminishes creativity and promote plagiarism – not always intentionally-through the growing dependence on machine generated ideas.

Lastly, Bandura's social cognitive theory (1986) emphasizes the importance of self-efficacy in academic achievement. Excessive use of ChatGPT may impair the students' confidence in their own abilities which can further exacerbate procrastination. Thus, students become less willing to initiate or persevere in challenging tasks. It becomes clear that habitual use of GPT can pose serious risk on the student's academic development, not only by enabling procrastination but also by weakening cognitive, motivational, and ethical dimensions of learning.

Methodology

This exploratory study investigates the awareness of EFL Master students at Ibn Khaldoun university of Tiaret regarding the relationship between ChatGPT usage and academic procrastination. The study sample consisted of 95 Master's students – both males and females – selected to represent a cross-section of the EFL post-graduate population ensuring a degree of sample representativeness. Moreover, the survey instrument designed for this study consisted of 10 different questions that varied in format, ensuring a balanced blend of qualitative and quantitative data collection.

The survey included a mix of closed-ended Likert scale and open-ended questions to thoroughly elicit insights on three dimensions: demographic information, behavioural use of ChatGPT and perception and attitudes related to Academic procrastination and AI dependence. Thus, closed-ended and multiple-choice items ensured ease of quantification; whereas, open-ended items allowed elaboration on personal views and experiences. In addition, the questionnaire was reviewed by two faculty members to ensure content validity, whose feedback helped greatly in refining clarity, relevance and neutrality of questions' wording.

Also, prior to full deployment, the survey underwent a pilot test involving a smaller section of the sample (10 students), whose feedback also resulted in minor adjustments that helped improve the instrument's usability and reliability.

Data Analysis

To begin with, 90% of the sample confessed having prior knowledge about ChatGPT as an AI model. Also, 53% of them confessed using it in their academic tasks with a frequency ranging from Complete to Moderate.

Table 1

Frequency of ChatGPT usage and procrastination rate

Do you use ChatGPT for academic tasks?	Low Procrastination	Moderate Procrastination	High Procrastination
No	15	27	2
Yes	7	36	7

As shown in the table above, among the 53% of respondents who use GPT, 67% of them rate their procrastination as moderate. This entails that Master students show awareness of their procrastination habit compared to reliance on GPT and both are estimated as moderate and not so severe. When asking comparative questions about the usefulness of ChatGPT and the way it may contribute to procrastination, this cross-tabulation summed up the responses.

Table 2

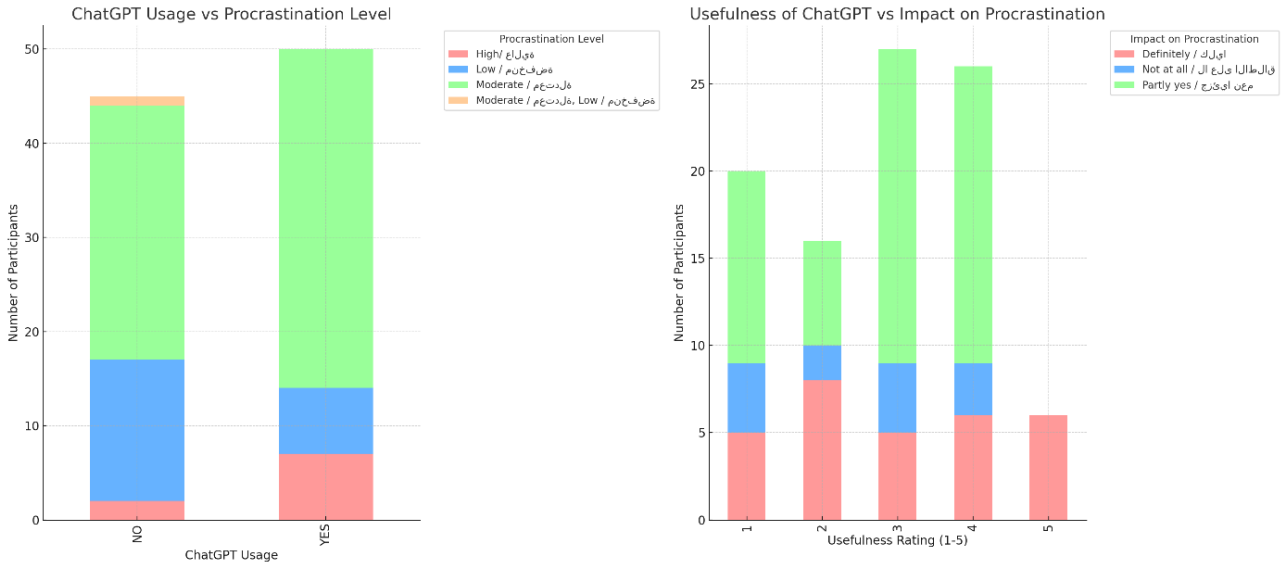
Perceived usefulness of ChatGPT and its impact on academic procrastination

Usefulness Rating (1-5)	Definitely increases procrastination	Partly increases procrastination	Does not increase procrastination
1	5	11	4
2	8	6	2
3	5	18	4
4	6	17	3
5	6	0	0

The results in the table above indicate that 23 respondents who view ChatGPT as very useful believe that it promotes procrastination, whereas the majority of those of view it as non-useful think definitely or partly that it promotes procrastination. This means that students though they realize some of ChatGPT's advantages and usefulness, they still identify it as partly or majorly a cause of academic procrastination.

Figure 1

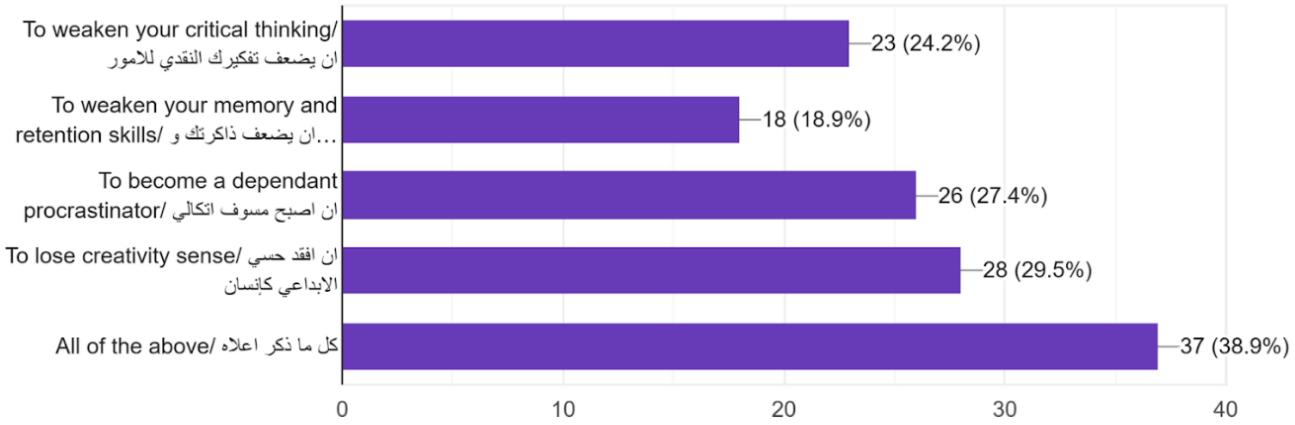
Visual representation of the results



To compare the findings, we can say that the majority of users of GPT claim having moderate levels of procrastination. They also perceive GPT as useful in majority, but believe it promotes procrastination. On another instance, when asked about how ChatGPT can impact your learning negatively in the future, 30% of respondents confessed fearing to lose creativity and originality. Meanwhile, approximately equal rates confessed fearing to suffer weak critical thinking skills and developing total procrastination. Meanwhile, 19% feared memory and retention loss.

Figure 2

Potential long-term impacts of reliance on ChatGPT



Overall, all participants confessed GPT would have a negative long-term impact on their learning distributed between the various options, however, 39% selected all the options as they strongly realized the drawbacks of overreliance on AI tools.

At the end of the survey when asked about potential precautions to limit the impact of ChatGPT on learning, students with a majority proposed the following:

- Prioritizing the human mind through centering tasks around real-life situations and problem solving.
- Banning AI tools or reinforcing detection implementation and proposing strict punishments.
- Elaborating structured mechanisms on how to adopt AI tools in education with a reasonable and calculated rate.

Discussion

The findings of this exploratory study suggests that ChatGPT plays a dual role in academic life, acting both as a supportive learning aid and as a potential enabler for procrastination. On one hand, its appeal lies in the convenience it offers in terms of instant access to coherent information, time-saving capacity and simplified academic assistance. However, this very efficiency can lead to behavioral shifts in task initiation. The data suggest that the more useful and efficient the students perceive GPT to be, the more likely they are to delay engagement with tasks, viewing the tool as a safety net for last-minute completion.

Interestingly, a substantial portion of students – particularly those identifying as moderate procrastinators – do not view GPT as a cause of procrastination per se. Instead, they view it as reinforcing existing procrastination tendencies rather than creating them. This nuanced understanding highlights the role of self-regulated learning in mediating technology use. Students' divergent views point to a level of metacognitive awareness regarding their study habits, time-management, and ethical engagement with AI tools. In fact, many respondents demonstrated a responsible and critically reflective approach to using ChatGPT, challenging the original hypothesis that AI tools inevitably lead to overreliance and diminished student agency.

The results may also reflect a broader shift in how students perceive digital tools, not merely as shortcuts but as resources to be strategically integrated into learning when used mindfully. This interpretation aligns with Zimerman (2000) model of self-regulation which emphasizes that learners can either use tools to enhance autonomy and efficiency or to circumvent genuine cognitive effort. With that being said, several limitations must be acknowledged. First, the study relied on self-reported data which are inherently subject to bias and may not accurately reflect actual

behavior. Second, the sample was limited to EFL Master students at one university which may affect the generalizability of the findings. Third, the design of the survey did not include longitudinal measures making it difficult to assess causal relationships between GPT and procrastination patterns.

To ensure GPT is used to enhance learning rather than hinder it, practical suggestions from students called for structured guidelines on AI use, proposing the elaboration of institutional frameworks on AI literacy curricula. Moreover, several participants proposed using AI as a starting point for critical reflection and deeper engagement such as: rewriting or commenting. Last, since procrastination is partly rooted in psychological and motivational factors, the institution may consider offering time-management workshops; Self-regulation training or embedded prompts in assignments that guide students to plan their AI use thoughtfully.

Conclusion

Despite the many benefits AI provides to its users in the academic field, it remains doubted and uncontrolled in the majority of the time. ChatGPT as a prominent advanced technology presents both opportunities and challenges in academia. While it promotes productivity, personalized content and quick interactivity with the user; it also contributes to procrastination if not used responsibly. Reliant usage of ChatGPT can result in weakened academic performance, poor retention and decreased memory. A balanced approach to integrate AI usage in completing academic assignments requires strengthened self-regulation strategies first. Promoting critical engagement and a structured framework for usage can contribute majorly into maximizing ChatGPT's benefits and minimizing its risks.

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