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# AI Dependence and its Relationship to Academic Procrastination among University of Zawia Students at the Faculty of Languages and Translation

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**Abstract:**

The increasing use of artificial intelligence in higher education has raised questions about its influence on students' academic behaviour, particularly their tendency to academic procrastination. However, limited research has examined whether dependence on artificial intelligence is related to academic procrastination among university students in Libya. This study investigated the relationship between artificial intelligence dependence and academic procrastination among students at the Faculty of Languages and Translation, University of Zawia. A quantitative research design was employed, and data were collected through a structured questionnaire administered voluntarily to students from the English, Italian, French, and Arabic departments. The questionnaire consists of two sections. The first section measures artificial intelligence dependence using the scale developed by Morales-García and colleagues in 2024. The second section measures academic procrastination using an adapted version of the Tuckman Procrastination Scale developed in 1991. The participants were 102 from different departments. The collected data were analysed using R statistical software. The results show no statistically significant relationship between artificial intelligence dependence and academic procrastination. Pearson's correlation reveals a very weak negative relationship between the two variables, while Spearman's correlation produces a similar non-significant result. These findings indicate that artificial intelligence dependence is not significantly associated with academic procrastination. The study concludes that artificial intelligence dependence alone does not determine academic procrastination and suggests that other academic, motivational, and self-regulatory factors may play a more important role in students' decisions to delay academic tasks.

**Keywords:** Artificial intelligence; AI dependence; Academic procrastination.

# الاعتماد على الذكاء الاصطناعي وعلاقته بالتسويف الأكاديمي لدى طلاب كلية اللغات والترجمة بجامعة الزاوية

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**الملخص:**

تهدف هذه الدراسة إلى الكشف عن طبيعة العلاقة بين الاعتماد على الذكاء الاصطناعي والتسويف الأكاديمي لدى طلبة كلية اللغات والترجمة بجامعة الزاوية. اتبعت الدراسة المنهج الكمي، واعتمدت على استبيان منظم لجمع البيانات من 102 طالب من مختلف الأقسام (اللغة الإنجليزية والإيطالية والفرنسية والعربية)، من خلال المشاركة الإلكترونية الطوعية. وتضمن الاستبيان قسمين: خُصص القسم الأول لقياس الاعتماد على الذكاء الاصطناعي باستخدام مقياس Morales-Garcíaوزملائه(2024) ، بينما خُصص القسم الثاني لقياس التسويف الأكاديمي باستخدام نسخة معدلة من مقياس Tuckman Procrastination Scale (1991). وحُللت البيانات باستخدام برنامج R الإحصائي. أظهرت النتائج عدم وجود علاقة ذات دلالة إحصائية بين الاعتماد على الذكاء الاصطناعي والتسويف الأكاديمي، كما كشفت نتائج تحليل الارتباط عن

علاقة سلبية ضعيفة جدًا بين المتغيرين. وتشير هذه النتيجة إلى أن اعتماد الطلبة على الذكاء الاصطناعي لا يرتبط بصورة مباشرة بميلهم إلى التسويف الأكاديمي. وتخلص الدراسة إلى أن الاعتماد على الـذكاء الاصطناعي لا يمثل عاملاً كافيًا لتفسير التسويف الأكـاديمي، وأن فهم هـذا السـلوك يتطلب النظـر في عوامل أخرى، من بينها الدافعية الأكاديمية والتنظيم الذاتي والعوامل المرتبطة بالبيئة التعليمية.

**الكلمات المفتاحية:** الذكاء الاصطناعي، التسويف الأكاديمي.

**Disclosure of Artificial Intelligence (AI) Tools:** The authors declare the use of ChatGPT 4.5 during the title refinement and language editing stages, representing approximately 25% of the overall writing process. ChatGPT was used to refine the research title and edit selected sections of the manuscript for language clarity and accuracy. The authors also declare the use of Consensus during the literature search and references identification stage, representing 80% of the reference-search process. Consensus was used to identify relevant academic studies and sources related to the research topic. The authors independently reviewed, verified, and selected the sources used in the manuscript and retain full responsibility for the accuracy, originality, interpretation, and scientific integrity of the work.

## 1. Introduction

### *1.1 AI Dependence in Higher Education*

Artificial intelligence (AI) has become increasingly integrated into higher education. AI can generate and explain texts, making them increasingly relevant to students' academic needs. In language education and academic writing, AI can provide students with immediate assistance in developing ideas and improving language accuracy (Mahapatra, 2024). Students increasingly perceive AI as a useful resource for academic purpose (Liu et al., 2024).

The increasing availability of AI, raising questions about the difference between using AI as an academic support tool and depending on AI to complete academic tasks. AI dependence can be understood as a pattern in which students increasingly rely on artificial intelligence to perform academic tasks that they might otherwise complete independently. Morales-García et al. (2024) addressed this issue by developing and validating a scale specifically designed to measure dependence on artificial intelligence among university students. Their work demonstrates that AI dependence can be examined as a measurable construct rather than simply as frequency of technology use. Similarly, research involving university students has found that AI use may be influenced by academic workload and time pressure, suggesting that students may turn to AI when they experience pressure to complete academic responsibilities (Abbas et al., 2024). At the same time, excessive use has been associated with undesirable academic outcomes, including tendencies towards procrastination and reduced academic performance (Abbas et al., 2024).

The relationship between AI use and students' academic behavior is therefore complex. On one hand, AI can facilitate learning by providing rapid explanations and assistance with writing. On the other hand, excessive reliance may reduce the extent to which students personally engage with the processes involved in completing academic work.

### *1.2 Academic Procrastination*

Academic procrastination is a common behavioural problem in education and generally refers to the delay of intended academic tasks despite recognising that the delay may have negative consequences. It can involve postponing assignments, studying, reading, preparing for examinations, or completing other academic responsibilities. A systematic review of university students described academic procrastination as the postponement of study-related tasks and highlighted its relationship with students' learning self-regulation and study strategies (Pereira and Ramos, 2021). Academic procrastination is therefore not simply a matter of poor time management; it can also reflect difficulties in regulating behaviour and maintaining goal-directed academic issues.

Recent research has continued to demonstrate the importance of academic procrastination in understanding university students' academic behaviour. For example, Elizondo et al. (2024) conceptualised procrastination as a failure of self-regulation and examined its relationship with goal setting, decision-making, and learning from

mistakes. Their findings highlight the importance of self-regulatory processes in understanding why students may delay intended academic tasks. Similarly, Turner and Hodis (2023), in a systematic review of interventions designed to reduce academic procrastination, described it as a prevalent problem affecting students' academic performance, health, and well-being. Their review also indicated that different interventions can reduce procrastination, demonstrating that procrastination is an important behavioural issue that can be addressed within educational contexts.

Academic procrastination can also be influenced by students' academic environment and psychological experiences. Bäulke and Dresel (2023) found that characteristics of higher-education courses, including aspects related to assignment clarity, feedback structures, and students' basic psychological needs, can be associated with academic procrastination. More recent research has similarly shown that academic procrastination is associated with several academic and psychological factors. For example, Alvarado Cevallos et al. (Alvarado Cevallos et al., 2024) found that academic motivation is relevant to understanding procrastination among university students, while other recent research has connected procrastination with stress and students' psychological experiences (Jochmann et al., 2024).

### *1.3 Research Problem*

The growing use of artificial intelligence (AI) in higher education has changed the way university students approach academic tasks. In Libya, Abolkasim and Hasan (2024), in a study of more than 1,000 students and academic staff from Libyan universities, reported strong interest in integrating ChatGPT into university education. While AI tools can support students in completing academic work, increasing dependence on these tools may influence students' independent engagement with academic tasks and their decisions about when to complete them. In addition, academic procrastination has been identified as an issue among Libyan university students. For example, Alawime (2024), in a study of fourth-year students at the Faculty of Education, Omar Al-Mukhtar University, found a statistically significant negative relationship between academic procrastination and academic achievement. However, previous research has largely examined AI use and academic procrastination as separate issues, with limited attention to how AI dependence relates to students' academic procrastination. This leaves a gap to examine the level of students' dependence on artificial intelligence and their level of academic procrastination, and to determine whether a relationship exists between the two variables.

### *1.4 Research Objectives*

This study aims to investigate the relationship between AI dependence and academic procrastination among students at the Faculty of Languages and Translation, University of Zawia. Specifically, the study seeks to examine the level of students' dependence on artificial intelligence and their level of academic procrastination, and to determine whether a relationship exists between the two variables.

### *1.5 Research Hypotheses*

**Alternative Hypothesis ($H_1$):** There is a statistically significant relationship between AI dependence and academic procrastination among students at the Faculty of Languages and Translation, University of Zawia.

**Null Hypothesis ($H_0$):** There is no statistically significant relationship between AI dependence and academic procrastination among students at the Faculty of Languages and Translation, University of Zawia.

## 2. Methodology

### *2.1 Research Design*

The study employs a quantitative research design to investigate the relationship between AI dependence and academic procrastination among University of Zawia students at the Faculty of Language and Translation. The objective of this study is to determine the relationship between AI dependence and academic procrastination no matter their age, academic year and the department. A structured questionnaire serves as the main instrument for collecting quantitative data. The questionnaire consists of two sections: section one measures students' dependence on artificial intelligence. The items were adapted from the Scale for Dependence on Artificial Intelligence developed and validated by Morales-García et al. (2024). This section consists of five items and uses a five-point Likert scale ranging from 1 to 5. Section Two measures academic procrastination. This section is

adapted from the Tuckman Procrastination Scale developed by Tuckman (1991). It consists of eight items and uses a four-point Likert scale. Then, the collected data were analysed using R statistical software.

### *2.2 Population*

The target population consists of students enrolled at the Faculty of Language and Translation, University of Zawia. The population includes students from the English, Italian, French, and Arabic departments. Including students from the four departments provides representation of the different language programs within the faculty and allows the study to examine AI dependence and academic procrastination across the faculty. The questionnaire is translated into Arabic to ensure clear understanding of the items. The translation maintains the original meaning of the adopted items.

### *2.3 Sampling*

The study uses a random sampling approach. Students from the four departments participated randomly. The questionnaire link is distributed through the official student groups of the Faculty of Language and Translation, where students from the different departments have access to the questionnaire. Students who choose to participate complete the questionnaire electronically through Google Forms.

### *2.4 Data Analysis*

Data were analysed using R statistical software. Descriptive statistics were calculated to characterize the distributions of the study variables, including the mean, standard deviation. The internal consistency of the AI Dependence and Academic Procrastination measures was examined using Cronbach's alpha, corrected item–total correlations, and alpha coefficients obtained following item deletion.

The association between AI Dependence and Academic Procrastination was initially examined using Pearson's product–moment correlation coefficient. Given the ordinal nature of the item-level responses, Spearman's rank-order correlation coefficient was additionally calculated as a robustness check. To further examine the predictive association between the two constructs, a simple linear regression analysis was conducted, with Academic Procrastination entered as the dependent variable and AI Dependence as the sole predictor. Model performance was evaluated using the unstandardised regression coefficient (B), standard error (SE), t-statistic, p-value, 95% confidence interval (CI), coefficient of determination ($R^2$), adjusted $R^2$, and F-statistic. Statistical significance was evaluated using a two-tailed threshold of $p < .05$.

## 3. Results and Discussion

### *3.1 Descriptive Statistics*

AI dependence. As shown in Table 1, the overall mean score for AI dependence was 2.95 ± 0.82 on a five-point response scale, indicating a moderate level of dependence among the participating university students. Item-level results showed some variation in the pattern of dependence. The highest mean was observed for the statement "I fear that Generative AI may replace some of my current skills or abilities" (3.28 ± 1.33), followed by the need for validation or feedback from Generative AI systems (3.03 ± 1.31). In contrast, the lowest mean was observed for feeling unprotected without access to Generative AI (2.63 ± 1.46). Overall, these findings suggest that students' engagement with Generative AI was not characterised by uniformly high dependence; rather, dependence appeared more pronounced in relation to perceived changes in personal academic capabilities and the need for AI-supported reassurance.

**Table (1): Item-level descriptive statistics for the Dependence on Generative Artificial Intelligence scale**

| Item No. | Item | Mean ± SD |
|---|---|---|
| 1 | I feel unprotected when I do not have access to Generative AI. | 2.63 ± 1.46 |
| 2 | I worry about falling behind in my academic tasks or projects if I do not use Generative AI. | 2.88 ± 1.34 |
| 3 | I make every effort to keep up with developments in Generative AI in order to remain relevant in my academic field. | 2.93 ± 1.10 |
| 4 | I constantly need validation or feedback from Generative AI systems to feel confident about my decisions. | 3.03 ± 1.31 |
| 5 | I fear that Generative AI may replace some of my current skills or abilities. | 3.28 ± 1.33 |
| **Overall score** | **Generative AI Dependence** | **2.95 ± 0.82** |

Note. Higher scores indicate greater dependence on Generative AI. N = 102.

Academic procrastination. Table 2 indicates that the overall mean score for academic procrastination was 2.52 ± 0.61. The item means were relatively close to one another, ranging from 2.47 to 2.63, suggesting a relatively consistent pattern of academic task-delay behaviors across the retained items. The highest mean was found for "I devote the necessary time to academic tasks even when they are boring" (2.63 ± 1.09), whereas the lowest means were observed for postponing tasks that students do not enjoy and waiting until the last minute when facing academic deadlines (2.50 ± 1.18 and 2.47 ± 1.06, respectively). Taken together, the descriptive findings indicate a moderate level of procrastination-related behavior, with no single retained item demonstrating an exceptionally elevated response.

**Table (2): Item-level descriptive statistics for the retained Academic Procrastination scale**

| Item No. | Item | Mean ± SD |
|---|---|---|
| 6 | I unnecessarily delay completing academic tasks, even when they are important. | 2.52 ± 1.07 |
| 7 | I postpone starting academic tasks that I do not enjoy. | 2.50 ± 1.18 |
| 8 | When I have an academic deadline, I tend to wait until the last minute. | 2.47 ± 1.06 |
| 10 | I repeatedly postpone improving my academic work habits. | 2.47 ± 1.11 |
| 12 | I devote the necessary time to academic tasks even when they are boring. | 2.63 ± 1.09 |
| 14 | I waste time on academic tasks and find it difficult to change this habit. | 2.52 ± 1.05 |
| 16 | I intend to complete an academic task, but I end up delaying it. | 2.53 ± 1.12 |
| 18 | Even when I know I should start an academic task, I still delay starting it. | 2.55 ± 1.01 |
| **Overall score** | **Academic Procrastination** | **2.52 ± 0.61** |

Note. N = 102. The final scale consisted of eight items following exploratory factor analysis and item screening.

**Table (3): Descriptive statistics for Generative AI Dependence and Academic Procrastination**

| *Scale* | *Number of Items* | *Response Range* | *Score Range* | *Mean ± SD* |
|---|---|---|---|---|
| Generative AI Dependence | 5 | 1– 5 | 5–25 | 2.95 ± 0.82 |
| Academic Procrastination | 8 | 1– 4 | 8–32 | 2.52 ± 0.61 |

Note. Values represent mean item scores. Higher scores indicate greater Generative AI Dependence and greater Academic Procrastination. N = 102.

### *3.2 Reliability of the Study Scales*

Item-level screening was conducted to assess the consistency of each item with the overall scale. Items showing weak corrected item–total correlations or a meaningful improvement in Cronbach's alpha if deleted were considered for removal. However, item deletion was not based solely on statistical criteria; the theoretical relevance and conceptual meaning of each item were also considered. Following this process, the Academic Procrastination Scale was refined to eight items with improved internal consistency, while all five items of the AI Dependence Scale were retained because deleting any item did not meaningfully improve reliability.

As presented in Table 4, the Generative AI Dependence Scale demonstrated a Cronbach's alpha coefficient of 0.609, indicating acceptable preliminary internal consistency for a brief five-item measure, particularly given the small number of items. The Academic Procrastination Scale demonstrated comparatively stronger internal consistency, with a Cronbach's alpha of 0.696, approaching the conventional 0.70 criterion and indicating adequate reliability for research purposes. Overall, both scales demonstrated sufficient internal consistency to support their use in the subsequent analyses. The higher reliability observed for the Academic Procrastination scale may reflect its greater number of retained items (eight versus five), as Cronbach's alpha is partly influenced by scale length.

**Table (4): Cronbach's alpha reliability of the study scales**

| *Scale* | *Number of Items* | *Cronbach's α* |
|---|---|---|
| Generative AI Dependence | 5 | 0.609 |
| Academic Procrastination | 8 | 0.696 |

Note. N = 102. Cronbach's alpha coefficients were calculated for the final retained items of each scale.

The Generative AI Dependence Scale demonstrated a Cronbach's alpha coefficient of α = .609 across its five items. Although α = .70 is commonly used as a general reference point, reliability thresholds should not be treated as universal or absolute cutoffs. In exploratory research, coefficients around .60 may be considered adequate depending on the purpose of the measurement, the stage of scale development, and the characteristics of the construct being assessed (Taber, 2018). This interpretation is also relevant to the present study because the scale consists of only five items, and Cronbach's alpha is influenced by the number of items in a scale (Cortina, 1993). Accordingly, the obtained coefficient of α = .609 was interpreted as indicating modest internal consistency rather than as evidence that the measure was invalid. Furthermore, all five items were theoretically relevant to the construct, and item deletion did not produce a meaningful improvement in internal consistency. Therefore, no item was removed solely to increase Cronbach's alpha. The five-item scale was retained, while its modest internal consistency is acknowledged as a limitation when interpreting the findings.

### *3.3 Correlation Between Generative AI Dependence and Academic Procrastination*

The correlation analysis did not provide evidence of a statistically significant association between Generative AI Dependence and Academic Procrastination. Pearson's correlation indicated a very weak negative relationship between the two variables, r = −.067, p = 0.503, with a 95% confidence interval ranging from −0.258 to 0.129. This effect was small and statistically non-significant. A Spearman rank-order correlation was also conducted as a robustness check and yielded a similar result, ρ = −.082, p = 0.411. Thus, regardless of whether the variables were examined using Pearson's or Spearman's correlation, the findings did not support a statistically significant relationship between students' dependence on Generative AI and their academic procrastination.

**Table (5): Association coefficients for Generative AI Dependence and Academic Procrastination among university students (N = 102)**

| *Variables* | *Mean* | *SD* | Pearson r | *p* |
|---|---|---|---|---|
| Generative AI Dependence | 2.95 | 0.82 | — | — |
| Academic Procrastination | 2.52 | 0.61 | −0.067 | 0.503 |

Note. Pearson's correlation coefficient was used. The association between Generative AI Dependence and Academic Procrastination was not statistically significant, r = −0.067, p = .503, 95% CI [−0.258, 0.129]. p < .05 indicates statistical significance. For the Spearman correlation, the result was similarly non-significant, ρ = −0.082, p = 0.411.

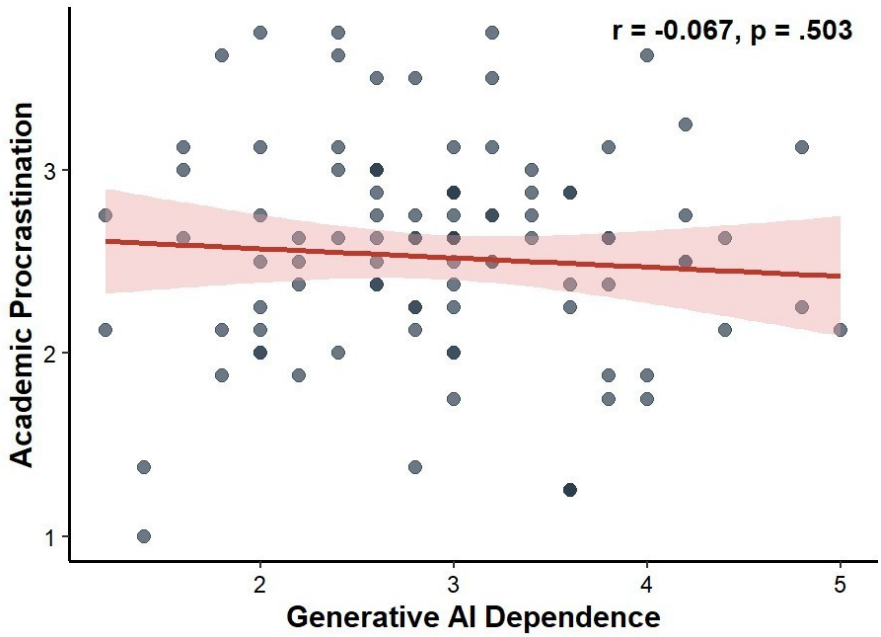



**Figure (1): Scatterplot of the relationship between Generative AI Dependence and Academic Procrastination among university students (N = 102)**

### *3.4 Regression Analysis*

A simple linear regression was conducted with Academic Procrastination as the dependent variable and AI Dependence as the predictor.

Table 6 presents the results of the simple linear regression analysis examining the effect of AI Dependence on Academic Procrastination among university students. The model was not statistically significant, $F(1, 100) = 0.452$, $p = .503$, with an $R^2$ of 0.005, indicating that Generative AI Dependence explained only 0.5% of the variance in Academic Procrastination. AI Dependence did not significantly predict Academic Procrastination ($B = -0.050$, $SE = 0.075$, $t = -0.672$, $p = .503$). The negative regression coefficient indicates a very small inverse association; however, this effect was not statistically significant. Thus, the results do not provide evidence that Generative AI Dependence predicts Academic Procrastination in this sample.

**Table (6): Simple linear regression predicting Academic Procrastination**

| Variables | B | SE | t | p | 95% CI | |
|---|---|---|---|---|---|---|
| | | | | | LL | UL |
| Constant | 2.672 | 0.229 | 11.659 | < 0.001 | 2.217 | 3.126 |
| Generative AI Dependence | −0.050 | 0.075 | −0.672 | 0.503 | −0.199 | 0.098 |

**Model statistics:** $R^2 = .0045$; Adjusted $R^2 = -0.0055$; $F(1,100) = 0.452$, $p = .503$. Note. B = unstandardized regression coefficient; SE = standard error; CI = confidence interval; LL = lower limit; UL = upper limit. The regression analysis showed that Generative AI Dependence did not significantly predict Academic Procrastination, $B = -0.050$, $SE = 0.075$, $t = -0.672$, $p = 0.503$, 95% CI [−0.199, 0.098]. The model explained approximately 0.5% of the variance in Academic Procrastination ($R^2 = 0.005$). Therefore, the hypothesis that Generative AI Dependence significantly predicts Academic Procrastination was not supported.

### *3.5 Discussion*

The findings of the present study indicate that there is no significant relationship between AI Dependence and Academic Procrastination among students. Although the correlation was negative, it was very weak ($r = -.067$, $p = .503$), and the Spearman correlation produced a similar non-significant result ($\rho = -.082$, $p = .411$). This finding suggests that students' dependence on AI does not necessarily correspond to a higher or lower tendency to academic procrastination. The result differs from the findings reported by Abbas et al. (2024), who suggested that students may turn to AI when experiencing academic workload and time pressure, and also associated excessive AI use with tendencies towards procrastination. The difference might be explained by the distinction between using AI as a response to academic demands and having a measurable dependence on AI. While students may use AI to manage workload or complete tasks under time pressure, such use does not necessarily mean that they procrastinate. The present finding is also consistent with the broader view presented by Mahapatra (2024) and Liu et al. (2024), who emphasised the supportive role of AI in academic writing and students' perceptions of AI as a useful academic resource. From this perspective, AI may function as a tool that assists students in completing academic tasks rather than directly influencing their decisions to procrastinate those tasks. This benefits may help explain why AI did not show a significant association with academic procrastination in the present study. In addition, the literature reviewed in the present study indicates that academic procrastination is influenced by multiple factors, particularly self-regulation, motivation, academic environment, stress, and psychological experiences (Bäulke and Dresel, 2023; Elizondo et al., 2024). Therefore, the absence of a significant relationship in the present study may indicate that procrastination is not primarily determined by students' dependence on AI, but rather by a combination of behavioural, motivational, and contextual factors. The findings consequently provide a different perspective from studies suggesting a direct connection between AI use and procrastination and highlight the importance of distinguishing between AI dependence and the reasons or circumstances underlying students' use of AI.

## 4. Conclusion

In conclusion, the findings do not support the assumption that greater dependence on AI is associated with either higher or lower levels of academic procrastination. This finding indicates that the use of AI alone does not explain students' tendency to procrastinate academic work and suggests that academic procrastination should be understood as a more complex behaviour influenced by other academic, motivational, and self-regulatory factors. The study therefore contributes to the growing body of research on AI use in higher education by

providing evidence from a Libyan university context and by challenging a direct association between AI dependence and academic procrastination. In practical terms, universities and instructors are encouraged to promote responsible use of AI while also supporting students in developing effective time-management, self-regulation, and academic task-completion skills. Future research should extend the investigation to larger samples and different academic contexts and examine other factors that may interact with AI use and academic procrastination, thereby providing a broader understanding of students' academic behaviour in the context of the increasing integration of AI into higher education.

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