

To AI or not to AI: Use of AI in Academic Tasks

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ABSTRACT

The widespread use of generative AI among students necessitates the need to investigate AI usage in assignment completion. Guided by the Theory of Planned Behavior (TPB), the research questions of this study aims to investigate the factors that influence students' use of AI tools for academic tasks and explore students' ethical considerations when using AI in academic settings. Semi-structured interviews were conducted with eight university students from both science and arts disciplines. The findings revealed AI's role in various academic activities, which align with the components of the Theory of Planned Behavior (TPB). Students' attitudinal intentions were reflected in their use of AI for tasks such as brainstorming topics, selecting research methods, and identifying relevant literature. Subjective norms emerged through peer influence, where students' decisions to use AI were shaped by their social context. Additionally, the use of AI for proofreading and paraphrasing content illustrated the influence of perceived behavioral control, as students relied on AI tools to enhance the quality and accuracy of their writing. However, students were also concerned with issues such as AI reliance, ethical use of AI, the reliability and credibility of data produced by AI. This implied that there should be guidelines to aid instructors and students in dealing with AI usage in academia and the ethical integration in emerging technologies in academic context in the ASEAN region.

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Introduction

Artificial intelligence (AI) has gained popularity in recent years due to its ability to enhance human productivity in everyday tasks. One of the main reasons for this is that AI is said to be an advanced tool that changes how we solve problems and make decisions across all sectors, including healthcare, finance, transportation, and education (Holmes et al., 2021). Therefore, it is safe to say that artificial intelligence is progressively evolving with impressive abilities that may surpass those of the human brain in specific tasks and functions. AI is also said to have the ability to enable machines or systems to perform tasks that are human-like and offer convenience through its technological advancements. Apart from that, in academic settings, it is also apparent that AI tools not only enhance the accuracy and clarity of students' work but also provide valuable feedback and research assistance, thereby significantly improving the overall quality of academic writing.

AI is recognized as beneficial in various sectors, including education. This is due to AI providing various forms of assistance, such as helping to personalize learning, creating formative assessments, and facilitating communication not only between teachers and students but also among students (Muresan, 2023). This suggests that artificial intelligence's role in education can bring significant benefits, allowing both teachers and students to complete tasks and assignments effectively and efficiently with the assistance of AI. In language learning, AI facilitates, as well as evaluates, human speech (Ali, 2020). In

addition to that, AI also significantly raises the standard of language learning by customising it to each learner's unique characteristics, including background, skill, and expectations for English as a Second Language (Kushmar et al., 2022).

Based on a study in the Southeast Asia context by Wong and Looi (2024) on the advancement of generative AI in education within the Asia-Pacific region using *human-AI collaborative learning ecosystems*, *pedagogical shifts*, and *ethical and cultural considerations* as a conceptual framework, they highlighted that the integration of AI in the classroom is evolving. The concept of human-AI collaboration highlights new dynamics in student-teacher interaction, where AI can serve as a co-learner or cognitive partner. The same study noted that pedagogical shifts must emphasize how curricula and assessment methods evolve to incorporate AI literacy while safeguarding critical thinking. Simultaneously, the inclusion of ethical and cultural considerations also necessitates the need for context-based implementation, which is particularly vital in culturally diverse Southeast Asian education systems.

In line with what has been stated above, the extensive use of AI in academic settings in recent years is believed to be due to AI's ability in assisting students with successful and effective writing, on top of providing various other functions including grammar checking, proofreading, paraphrasing, as well as helping students to find papers and citations (Elaie, 2023). In the last few years, the use of AI in academic settings has also attracted students'

attention to using AI in automating assignment grading due to AI providing students with more accurate and timely feedback (Pokrivcakova, 2019). Hence, the advancement of AI as a powerful tool in education can be seen to be expanding as it grows to serve multiple functions, with its versatility having notably facilitated student learning.

In discussing the use of AI in an academic context, the importance of ethical guidelines pertaining to its use is deemed as crucial as its functionality. A study by Valerio (2024) on awareness and ethical concerns among university students in the Philippines found that 75% of the 500 participants demonstrated awareness of AI technologies usage in higher education. However, nearly half of the participants expressed concerns regarding the use of AI, particularly regarding their data privacy, algorithmic bias, and job displacement. The study also highlighted the need for clear ethical guidelines and transparency, enabling students to utilize AI in an ethically responsible and safe manner.

According to Kamila and Jasrotia (2023), in a study of ethical considerations about academic literature, the study has found that several ethical concerns need attention, such as privacy, security, bias, and fairness when it comes to using AI in academic settings. To help with the issue of ethical considerations of AI, this study has emphasized the significance of establishing a comprehensive ethical framework as a guideline for the implementation of artificial intelligence. This is to ensure that students not only benefit from the convenience and efficiency of AI but also engage with these tools in a manner that respects privacy, promotes fairness, and upholds academic integrity (Kamila & Jasrotia, 2023).

Although extensive research has examined the use of AI in education, particularly within Western contexts, there remains limited focus on how students in the Southeast Asian region perceive and engage with AI in academic writing. Many existing studies overlook cultural and contextual differences, and have not adequately taken into account how students in non-Western settings deal with the ethical dimensions of using AI tools.

Research Objectives

This research aims to identify factors that influence students' decision to use AI tools in academic tasks and explore students' perceptions of ethical considerations in using AI tools for academic tasks. In short, this paper seeks to answer the following questions:

RQ1: What factors influence students' decision to use AI tools in academic tasks in terms of *attitude*, *subjective norms* and *perceived behavioral control*?

RQ2: How do students' ethical considerations influence their perceptions toward using AI tools in their academic tasks?

Artificial Intelligence in Academic Settings

Artificial Intelligence is known to be beneficial in various sectors, including academics. This is due to AI helping to personalise learning, create formative assessments, and facilitate communication not only between teachers and students but also among students (Muresan, 2023). This suggests that artificial intelligence's role in education can bring significant benefits, allowing both teachers and students to complete tasks and assignments effectively and efficiently

with the assistance of AI. In language learning, AI facilitates, as well as evaluates, human speech (Ali, 2020). In addition to that, AI also significantly raises the standard of language learning by customising it to each learner's unique characteristics, including background, skill, and expectations for English as a Second Language (Kushmar et al., 2022). For instance, Mohammadkarimi (2024) has found that students hold positive views on AI-driven tools, noting their effectiveness in enhancing pronunciation skills, boosting confidence, and promoting engagement despite some challenges in capturing subtle pronunciation differences. These findings demonstrate AI's potential to teach pronunciation effectively, offering valuable insights for teachers, curriculum developers, and learners.

In line with what has been stated above, the extensive use of AI in academics in recent years is believed to be due to AI's ability to assist with successful and effective writing, as it provides various functions including grammar checking, proofreading, paraphrasing, as well as helping students to find papers and citations (Elaie, 2023). The use of AI in academic settings has also captured students' attention in recent years, as it is being utilized to automate grading. AI has been providing students with more accurate and timely feedback (Pokrivcakova, 2019). In addition, a study conducted by Wu and Li (2024), which is a meta-analysis of 21 pertinent studies from 2008 to 2023 found that AI chatbots have a significant impact on the language skill development of English-as-a-foreign-language (EFL) learners. This demonstrates that AI chatbots can effectively aid EFL learners in enhancing their language skills. Hence, the advancement of AI as a powerful tool in education can be seen to be expanding as it grows to serve many functions due to its versatility, which has notably facilitated student learning.

Furthermore, in Southeast Asia, the integration of digital technologies, including AI among teachers, appears to be increasingly well-received. Many educators are being equipped with essential digital competencies to enhance their teaching practices, thereby contributing to more enriched learning environments. For instance, according to a report by UNESCO (2023), teachers in Singapore are trained not only to use technology but also to design tech-enhanced lessons, create assessments for digital learning outcomes, and adapt lessons to suit AI-supported platforms to facilitate digital integration in the classroom. Similarly, in Indonesia and Thailand, a study by Utina et al. (2024) revealed that equipping educators with AI-related competencies will form the foundation toward equitable and effective integration of technology in education.

However, as artificial intelligence continues to grow rapidly, the issues related to its use are gaining attention and becoming a growing concern. According to the European Union, as reported by Neschke and Pesner (2022), researchers highlight several AI-related issues, including a lack of privacy, an authority gap, and bias in algorithms. To address these issues, the paper also emphasizes the need for robust regulations and guidelines in tackling the matter. Furthermore, another study by Kooli and Muftah (2022) also found that ethical concerns, such as trust, data security, and privacy, as well as the possibility of information misuse, are among the increasing concerns associated with AI use. These concerns related to the use of AI may stem from students' unfamiliarity with using AI tools. Research by Wulyani et al. (2024) shows that while students generally have a basic understanding of AI, many admitted to being unfamiliar with specific AI tools. This underscores the need for greater educational awareness about AI. Hence,

even though the reliance on AI technology is increasing, the issues about its usage also need to be taken into consideration.

Views on AI Ethics in Academics

In discussions regarding the utilization of AI, the significance of ethical guidelines about its use is deemed nearly as crucial as the functionality it provides. According to Kamila and Jasrotia (2023) in the study of ethical considerations pertaining to academic literature, the study has found that there are several ethical concerns that need attention, such as privacy, security, bias, and fairness when it comes to using AI in academic settings. To help with the issue of ethical considerations of AI, this study has emphasized the significance of establishing a comprehensive ethical framework as a guideline for the implementation of artificial intelligence. This is to ensure that students not only benefit from the convenience and efficiency of AI, but also engage with these tools in a manner that respects privacy, promotes fairness, and upholds academic integrity (Kamila & Jasrotia, 2023).

As previously discussed, researchers have highlighted the ethical issues surrounding the increasing use of AI technology. In academia, the majority of students want to integrate AI into their studies and wish for the university to provide them with reliable AI tools alongside university-level material (Balabdaoui et al., 2024). According to Balabdaoui et al. (2024), students display a high level of understanding towards the importance of ethical considerations in using AI, as they follow guidelines from educational institutions. However, as this is being said, the students hoped the university would offer AI tools that utilize dependable, university-level resources, as having access to trustworthy resources can significantly enhance

their learning experience. These studies have demonstrated that, despite students' acceptance of AI integration in academics, they also express concerns regarding AI's ethical considerations. Therefore, due to the increasing adoption of AI across academic settings, understanding students' perspectives on these ethical issues is crucial, particularly considering their active engagement with AI technology in educational contexts.

The Theory of Planned Behavior (TPB), proposed by Ajzen (1991), has been widely utilized to examine individuals' intentions regarding various behaviors. Several past researchers have studied students' attitudes towards various issues within an academic context. These researchers mainly utilize TPB as a theoretical framework to understand the phenomenon. For example, a study by Laksani (2019) explored on teachers' belief about the integration of digital literacy in English Language Teaching based on TPB framework and another survey by Sadaf and Johnson (2017) examined how teachers' behavioral, normative, and control beliefs are related to the integration of digital literacy in the classrooms.

Concerning this, a recent study by Valerio (2024) examined the attitudes, subjective norms, and perceived behavioral control of 500 university students in the Philippines and how these factors influence their awareness of ethical concerns about AI in education. The findings underscored the importance of establishing institutional ethical guidelines, implementing data privacy protections, and providing AI ethics education to ensure that digital innovation in academic settings remains student-centered and socially responsible.

Theory of Planned Behavior

Ajzen (1991) introduced the Theory of Planned Behavior as a framework for studying human intention and behavior. There are several versions of the theory, and this study has chosen the 1991 version of TPB as it is the reviewed version of 1985 and 1987. According to Ajzen (1991), human behavior can be predicted through intention. The intention and behavior of a person are influenced by three key dimensions: *attitude*,

subjective norms, and *perceived behavioral control*. He further explains that *intention* is reflected through these dimensions, and stronger *intentions* resonate with a higher likelihood of behavior execution.

In the context of this study, TPB provides a theoretical foundation for examining university students' behavioral intentions and ethical considerations regarding the use of AI tools in academic settings. The research questions were

Figure 1

Theory of Planned Behavior by Ajzen (1991)

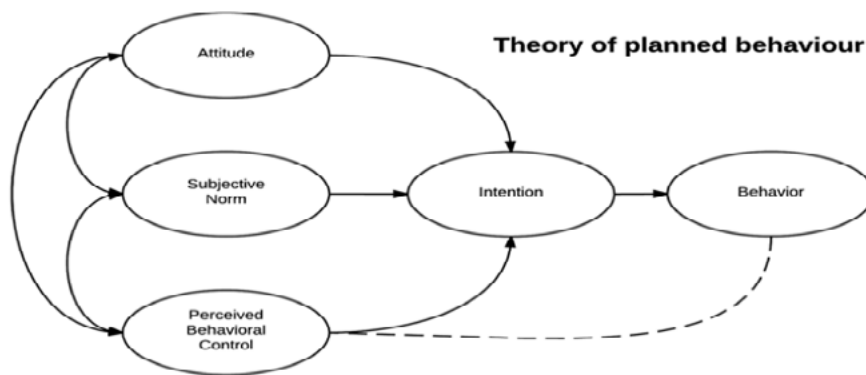
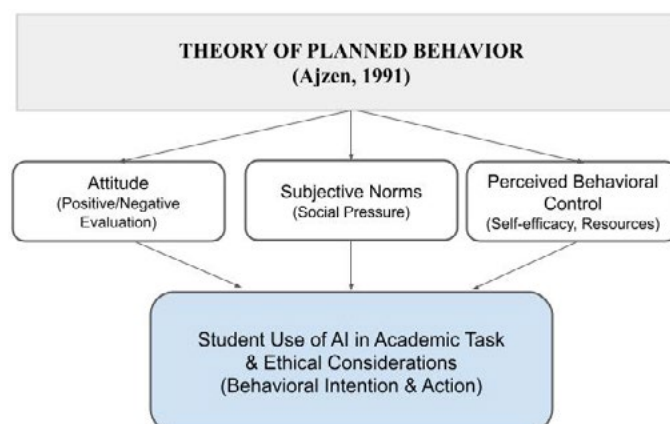


Figure 2

Conceptual Framework of the Study based on the Theory of Planned Behavior (Ajzen, 1991)



developed based on the three key dimensions of TPB, in order to ensure theoretical coherence throughout the study.

In this study, the key dimensions of the Theory of Planned Behavior (TPB) serve as a foundation for detecting the factors that influence students' use of AI in academic settings. These dimensions will reveal the factors that influence students' perceptions of using AI in academic contexts, which is the prime focus of this study. The first component, *attitude* refers to an individual's overall evaluation of performing a particular behavior, whether they view it positively or negatively. It is shaped by their beliefs about the outcomes of the behavior and the value placed on those outcomes (Ajzen, 1991). In the context of this study, *attitude* pertains to students' intentions regarding usage of AI tools, whether they consider these tools to be useful, harmful, etc. *Subjective norms* involve the perceived social pressures to engage or not engage in a behavior and are influenced by the expectations of important others, such as family, friends, educators, or institutions (Ajzen, 1991). In this study, *subjective norms* are examined by exploring how students are influenced by those around them. Whereas, *perceived behavioral control* refers to the perceived ease or difficulty of performing the behavior and is closely linked to an individual's self-efficacy (Ajzen, 2002). It considers both internal factors such as skills and knowledge, and in this study, *perceived behavioral control* includes external factors such as availability of resources and opportunities, and students' confidence in using AI tools.

To study individuals' intentions toward certain behaviors, past research has frequently employed the Theory of Planned Behavior (TPB), proposed by Ajzen (1991), as a theoretical framework. For instance, within the

field of education, researchers have conducted studies regarding the adoption of Information Technology (IT) in teaching and learning processes (Granić, 2022), digital tools in higher education (Teo, 2015), and mobile learning (Abdullah & Ward, 2016) via the lenses of TPB. These studies manage to demonstrate the usefulness of TPB in explaining how individuals' behavioral intentions affect their technology use. Nonetheless, scholars have also critiqued TPB for failing to consider contextual influences, such as institutional policies and the rapid pace of technological advancement (Armitage & Conner, 2001).

Despite these limitations, in the context of the present study, the TPB framework offers a structured lens through which to examine how students' attitudes, perceived social expectations, and sense of agency relate to their intention to engage with AI tools in academic settings. Compared to models such as the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT) which focus more heavily on system-related factors like perceived usefulness and performance expectancy, TPB emphasizes psychological constructs such as *attitude*, *subjective norms*, and *perceived behavioral control*, which are central to understanding behavioral intentions and decision-making as well as providing a more comprehensive account of the psychological and social dimensions that shape technology use (Dwivedi et al., 2017).

Methodology

The research employs a qualitative design, utilizing semi-structured interviews as the primary method of data collection, involving eight university students from both science

and arts disciplines. According to Merriam and Tisdell (2016), the qualitative method is well-suited for examining complex social phenomena, particularly students' lived experiences and attitudes. Since this research focuses on students' ethical viewpoints and attitudes toward AI usage, the qualitative method is deemed appropriate as it will provide in-depth insight into the reasons behind students' attitudes toward the ethical considerations of AI usage in the academic context.

Participants

The participants in this study consisted of undergraduate and postgraduate students enrolled at a public university in Malaysia. They were selected using Google Form surveys that contain items related to their experience with AI usage. The 8 participants comprised 4 undergraduate students and 4 postgraduate students from both the sciences and arts programs. Following the chronology of interview sessions held with the participants, the participants were assigned with codes using alphabets. For instance, Students A, B, C, and H were undergraduate students while Students D, E, F and G were the postgraduate students. The rationale for including both undergraduate and postgraduate students is to ensure the interview findings can divulge a wide range of perspectives toward ethical considerations on the use of AI in academic settings.

A total of 32 students responded to the survey that was distributed via email and WhatsApp to students across different faculties, which served as the initial pool of participants. Out of these, 8 students voluntarily agreed to participate in in-depth interviews.

The undergraduate participants were generally around 22-23 years old, while the

postgraduate participants ranged between 27-29 years old. The sample included students from both science-based programs and arts-based programs with varying levels of prior experience using AI tools.

Data Collection Procedure

The data collection involved two stages. First, the Google Form survey was used to screen participants and confirm their prior experience with AI tools. Second, semi-structured interviews were conducted with 8 students who agreed to participate. Each interview lasted between 45-60 minutes and was conducted through face-to-face or Google Meet based on the participant preference. All sessions were audio-recorded with participants' consent.

The interview questions were designed with reference to the dimensions of Theory of Planned Behavior (TPB), and structured around the stages of assignment tasks, namely *pre-assignment*, *during the assignment*, *final stage (post-assignment)*, *proofreading*, and *paraphrasing*. For each stage, the questions posed were intended to gauge the three central TPB tenets: *attitudes* toward the behavior, *subjective norms*, and *perceived behavioral control*. The interview questions were verified by an experienced researcher who has conducted interviews for TPB related studies.

The *initial stage* of the question focused on pre-assignment or brainstorming phases, exploring the utilization of AI tools during topic selection. The *middle stage* also known as the *during the assignment stage* focused on the use of AI during the write-up of research methodology and literature review, while the *final stage* assessed AI tools' utilization during data analysis and discussions. An additional section was included to examine ethical considerations

related to proofreading and paraphrasing. These stages were designed to systematically explore students' attitudes as well as their ethical considerations when completing academic tasks. Sample interview questions can be found in Appendix A.

Data Analysis Procedure

The data from the interview were analyzed using a content analysis approach. Qualitative content analysis focuses on a thorough examination of language to classify relevant text that represent similar meanings (Weber, 1990). In this study, participant responses were coded and categorized based on their relevance to specific pre-identified themes. For example, during the *initial stage* of the assignment, participants were asked whether they use AI for brainstorming and why. The responses were grouped into "yes" or "no" categories, and subsequently they were further coded based on their relevance to the different themes.

Ethical Consideration

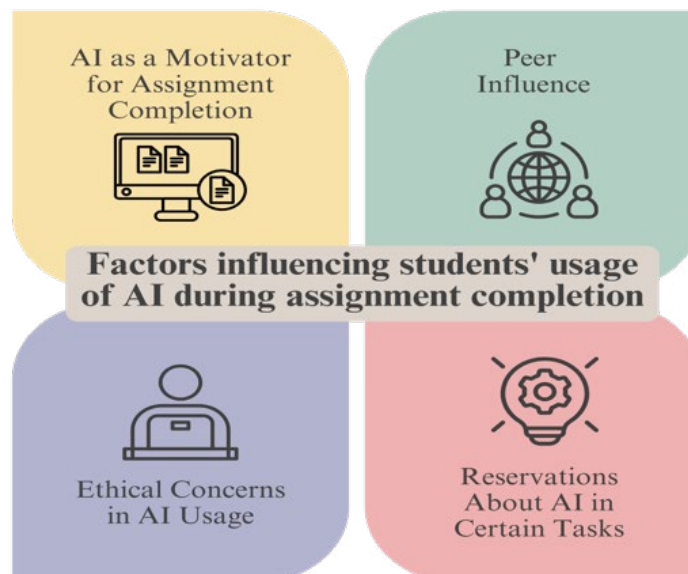
Steps were taken to ensure the participants' rights and anonymity. Before the interview sessions, participants were informed of the study's objectives and reminded that their participation is deemed voluntary and they are free to withdraw at any stage. The participants were briefed on the details of the study beforehand to maintain the integrity of the research. All data collected was anonymised to ensure the participants' confidentiality and privacy.

Findings

Based on the interviews conducted with students from Universiti Malaya, several factors influencing their use of AI were identified. These factors can be grouped into two main group, the first group relate to factors influencing students' decision to use AI tools in academic tasks and the second group relates to how students' ethical

Figure 3

Factors Influencing Students' Usage of AI During Assignment Completion.



considerations influence their perceptions toward using AI tools.

Factors that influence students' decision to use AI tools in academic tasks

AI as a Motivator for Assignment Completion

One of the factors influencing students' use of AI is its role as a motivator for completing assignments. This is evident in how AI assists students with stages of the assignment process, particularly in brainstorming and topic selection, as well as evaluating multiple perspectives and approaches. Students from the study found that AI provided valuable options and perspectives, especially at the initial stages of assignment preparation. For example, Student A mentioned, "AI helps to provide me options on my assignment topics and assess the various angles that I can incorporate into my assignments."

This assistance at the pre-assignment stage encourages students to use AI as it simplifies idea generation and topic exploration. While participants did not describe AI as something that directly "motivated" them, their reflections suggest that AI's role was more about making the process of assignment preparation easier and more manageable. This sense of ease, particularly during the initial stage has appeared to help students to feel more confident in getting started with their assignment. Additionally, AI boosts students' confidence across various stages of assignment completion. Participants expressed high confidence in using AI for tasks like brainstorming, proofreading and paraphrasing. As stated by Student D, "I am confident in using AI to brainstorm ideas since I get a lot of information for my assignment."

Peer Influence

The influence of peers also plays a crucial role in students' decisions to incorporate AI into their assignments. Discussions with friends often lead to shared insights about the functionality and effectiveness of AI tools, encouraging students to try AI for themselves. For example, Student A stated, "When chatting with them about the assignments, sometimes some students will evaluate AI tools they have tried and also share their experiences on how to give instructions to AI to obtain accurate information."

Such exchanges provide students with practical knowledge on using AI effectively, creating a social environment that reinforces AI adoption. In this context, *peer influence* specifically refers to two aspects: (1) encouraging students' adoption and usage behaviors of AI tools for academic tasks, and (2) shaping students' awareness when interacting with AI, particularly regarding accuracy of information. This shows that peer influence operates both on students' practical behaviors and their ethical decision-making. Apart from encouraging AI use, peers also shape students' attitudes towards ethical considerations. Many students reported feeling a social responsibility to approach AI use with caution, as their friends often reminded them about ethical aspects, particularly the risks of data sharing. For instance, Student D noted, "Yes, they sometimes remind me to be cautious when using AI tools that can help modify and polish the text."

This peer-based reminder system establishes a normative expectation for using AI responsibly, influencing students' perceptions of AI use within an ethical framework.

Reservations of AI on Certain Tasks

Additionally, students' reservations about using AI for specific tasks also play a significant role in influencing their decision to incorporate AI into their assignments. Despite the advantages, students also demonstrate some reservations about using AI in specific academic tasks. It was found that students are hesitant to rely on AI for tasks that require critical judgment, such as selecting research methods or conducting data analysis. They believe these tasks are better suited to human insights rather than automated outputs. For example, Student E emphasized that "data is readily available, and analysis has to be carried out by the individual to produce reliable and credible data representation", illustrating the importance they place on human involvement in ensuring accuracy and integrity.

Additionally, some students also raised concerns about the accuracy and dependability of AI-generated data, questioning whether it can uphold academic standards for data validity and reliability. These reservations reflect students' cautious approach to AI. While they find AI helpful for more straightforward tasks such as brainstorming, proofreading, and paraphrasing, they are more reluctant to trust AI in areas that demand careful consideration and judgment.

Influence of Students' Ethical Considerations on their perceptions toward using AI tools

Ethical Concerns in AI Usage

Moreover, many students are aware of ethical considerations and consciously choose not to rely on AI at every stage of assignment completion, prioritizing ethics and academic integrity. For example, Student D emphasized, "It is important to follow ethical considerations

of AI since we do not want to get caught plagiarizing when writing the literature review."

This has demonstrated that the student recognizes the importance of ethical considerations when utilizing AI, particularly in the context of writing a literature review. The student is concerned about the potential risk of plagiarism when relying on AI-generated content, indicating a strong awareness of the ethical challenges associated with AI use in academic tasks.

Discussion

Factors that influence students' decision to use AI tools in academic tasks

Based on the analysis of the results, it appears that students perceive AI as a valuable tool for facilitating the completion of academic tasks, particularly during the early stages of assignment preparation when they are considering the scope of the content. This directly relates to the first research objective, as it highlights how students' *attitudes* (TPB) toward the usefulness of AI shape their decision to employ it in the early stages of academic tasks, which corresponds with Wulyani et al. (2024) study, whereby AI functions increase convenience, knowledge, and speed of task completion. In the context of this study, students perceived AI as a valuable tool during brainstorming due to its ability to provide relevant ideas and knowledge promptly, which directly reflects the positive impact as highlighted in Wulyani et al. (2024).

This observation also aligns with studies by Laksani (2023), Khalifa and Albadawy (2024), and Habib et al. (2024), who similarly found that AI can boost students' motivation

and foster creativity by offering diverse perspectives and refining content generation. In the present study, these students described AI as helping them in terms of brainstorming and organizing ideas, which is in line with Valerio's (2024) study, which demonstrated that students' *attitudes* and *perceived behavioral control* strongly influenced their awareness and ethical stance when dealing with AI usage. Additionally, students' reservations to trust AI in areas that demand careful consideration and judgment aligns with findings from Minooei et al. (2020), which suggest that individuals who are confident in their judgment often trust their own decisions over external tools. As a result, students see AI as a valuable support tool, but not as a substitute for human analysis, particularly in tasks that require critical thinking and data integrity.

However, while some viewed AI as helpful for completing assignments, others raised concerns about over-reliance, accuracy, and plagiarism, highlighting the dual role of AI as both a support and a risk in academic work which highlights the complexity of integrating AI into academic practice.

In addition, based on the findings, it was found that these students generally welcomed AI's integration where their perspectives were influenced by both the practical advantages of AI as well as their caution towards its use. Similarly, the UNESCO (2023) report and findings from the study by Utina et al. (2024) also showed similar trends. For instance, peer interaction was found to shape both students' willingness to use AI and their awareness of ethical use, which align with the *subjective norms* construct of TPB. Consistent with Xu et al. (2023), such social reinforcement highlights that attitudes toward AI are partly

shaped by perceived social expectations rather than individual preference. This finding also reinforces the TPB construct of *perceived behavioral control*, as students' confidence in using AI tools effectively influenced their decisions. *Attitudes*, *subjective norms*, and *perceived behavioral control* therefore interacted to shape students' overall stance, highlighting the dynamic interplay among TPB components rather than treating them as isolated constructs.

Influence of Students' Ethical Considerations on their perceptions toward using AI tools

These findings also consistent with research by Chan and Hu (2023), which highlighted students' concerns about AI's potential risks, such as inaccuracies, privacy violations, and its broader impact on personal development and societal values. While students acknowledge the support that AI offers in tasks such as brainstorming or paraphrasing, they remain cautious about fully integrating it into tasks that require deeper analysis or could compromise the integrity of their academic work. As such, students call for more straightforward guidelines in higher education on the responsible use of AI, ensuring it aligns with ethical standards and academic integrity.

This emphasis on students' ethical considerations also has important implications for teacher education. Educators must be equipped with not only digital competencies but also provided with ethical guidelines in using AI responsibly. Valerio (2024) emphasized the importance of institutional guidelines and ethics-related instruction, and the findings from this study reaffirm that. Educators must be able to leverage the affordances of AI by demonstrating thoughtful AI use in their instructions, while

preserving academic integrity and promoting independent thinking. It is also important to note that students' perspectives may vary depending on their academic level and discipline. For instance, postgraduate students may have more complex ethical concerns compared to undergraduates.

These findings align with the broader goals of global education and innovation. In line with Sustainable Development Goal (SDG) 4: Quality Education, the findings of this study highlight the importance of identifying the factors that influence students' use of AI in education. In particular, the study aligns with SDG 4 target 4.4, which emphasizes equipping learners with relevant skills, including technical and vocational skills. Additionally, the findings show how students are using AI to brainstorm, shape their ideas, and manage assignments in thoughtful ways. As a result, this has highlighted that using AI can strengthen digital literacy and critical thinking, both of which are key competencies within SDG 4.

Nonetheless, alternative explanations could also shape these findings. Students' positive orientation toward AI may reflect broader institutional encouragement of adopting digital technologies rather than AI-specific benefits. Moreover, addressing ethical considerations ensures that such integration contributes to inclusive and equitable quality education rather than reinforcing academic misconduct. Simultaneously, it also illustrates the ethical concerns that students face when engaging with AI, which relates to the emphasis in the UNESCO (2023) report that foregrounds several ethical concerns, particularly around the use of technology in education and the development of artificial intelligence (AI). By linking these concerns to global education goals, this study

advances Research Objective 2 by clarifying what constitutes "ethical considerations" in practical academic settings, such as issues of plagiarism, originality, and responsible reliance on AI tools. These insights can support the development of a more responsible and inclusive academic environment that integrates AI. Moreover, educators must also be provided with training and resources that align with the technological needs of students across different educational programs to ensure that AI can be optimally utilized and beneficial for all students.

Pedagogical Implication

As AI continues to play an increasingly important role in academic settings, educators have an opportunity to incorporate these tools into assignments and classroom activities. In particular, AI can be effectively used for brainstorming, topic selection, and content refinement. As a result of the integration, it can significantly promote students' creativity and independent thinking and foster better engagement between students and academic tasks. Notably, AI can be a valuable tool in research and assignment completion. Thus, educators need to encourage students to evaluate AI-generated content critically. It will help in preventing students from over-reliance on technology and at the same time, it can ensure that students continue to develop their analytical skills and maintain academic integrity.

As for the instructors, given the diverse pace of AI integration across ASEAN countries, the institutions involved may want to develop localized professional development training programs that align with national digital agendas. The institutions could embed AI literacy modules for the teachers' training curriculum in order to ensure that future educators will be confident and competent in integrating AI into their instruction.

Additionally, the educators themselves should learn how to critically evaluate technology use to prevent overreliance on AI. This will ensure that educators are capable of guiding students to verify the accuracy and appropriateness of AI outputs. This will indirectly contribute to students' academic development and reinforce ethics in AI usage.

Policy Implication

Educational institutions must establish clear policies and guidelines on the ethical usage of AI, which should emphasize the importance of academic integrity, specifically in addressing concerns about plagiarism. It will result in students effectively integrating technologies into their learning practices and ensure that AI is used responsibly and effectively. Universities should also provide training for both teachers and students on data privacy, bias in algorithmic tools, accountability, and transparency.

Conclusion

The objective of this study is to explore the factors influencing students' use of AI tools in academic tasks, especially through the lens of the Theory of Planned Behavior (TPB) and ethical considerations. This study is important in order to help to fill an important gap in the literature by providing insight into how students make decisions regarding AI usage.

Overall, it can be concluded that there are several factors that influence students' AI usage, such as AI as a motivator for assignment completion, peer influence, reservations about AI in specific tasks, and ethical concerns in AI usage. Students perceive AI tools as helpful for brainstorming, paraphrasing, proofreading,

and organizing ideas, particularly during the early stages of academic tasks. Peer influence also played a significant role in encouraging experimentation with AI for these students, demonstrating the social dimension of technology adoption. Additionally, some students expressed ethical concerns regarding the use of AI. These students were cautious about issues such as plagiarism, data reliability, and academic integrity, and purposely excluded AI for tasks that emphasized critical thinking or originality. These concerns highlighted the importance of ethical considerations in an academic context. Additionally, students in different fields may rely on AI differently, for example, those in arts and humanities may differ from those in sciences. Although this study did not explicitly examine such differences, future research should address demographic variations to enrich the analysis.

In a nutshell, this study has contributed to a deeper theoretical understanding of how students adopt and engage with AI through the lens of TPB and ethics. Specifically, the findings show that students' positive *attitudes* toward AI (usefulness for brainstorming and organizing ideas), *subjective norms* (peer encouragement), and *perceived behavioral control* (ethical caution, plagiarism concerns) jointly shaped their behavioral intentions. This demonstrates that TPB remains an effective explanatory model in the AI-in-education context while also extending its scope by highlighting the role of ethical decision-making in shaping technology use. Practically, the study highlights the need for targeted digital literacy training to guide the use of AI among students, based on the factors revealed in this study, and to teach them how to use AI ethically. Theoretically, this study advances the literature by integrating ethical considerations into TPB, offering a refined

understanding of how behavioral intention models can capture both adoption and avoidance decisions. This provides a unique contribution to technology adoption studies in education, particularly within the under-researched ASEAN context, where understanding students' ethical and behavioural patterns toward AI remains limited but increasingly vital for advancing higher education development. The results also highlighted the importance of integrating AI-focused modules into teacher education programs in the ASEAN region. The programs should address both technical and ethical competencies to enable future educators to model responsible AI use in classrooms.

However, the study has several limitations that should be taken into consideration. Firstly, the study sample was relatively small, involving only 8 students from the science and non-science programs. This limitation constrained the generalizability of the findings. Furthermore, the study only recruited participants from one institution. Therefore, it is inadequate to generalize the findings to other student populations or educational contexts. Moreover, the study primarily focused on factors influencing students' use of AI during assignment completion and their ethical concerns related to its use. It did not investigate educators' or administrators' perspectives regarding the use of AI tools and their ethical considerations in the academic context. Future research may want to explore these two aspects and how it may impact the utilization of AI in the education sector.

Several recommendations should be considered in light of the study's limitations. Firstly, increasing the study sample size by including students from various programs and universities could enhance the generalizability of the study. Furthermore, future researchers may

want to explore educators' and administrators' perspectives so that a more comprehensive understanding of AI usage in academic settings can be gauged. Additionally, educational institutions such as schools and universities should actively promote the proper integration of AI tools and their ethical use into the curriculum to raise students' awareness regarding ethical AI usage. Educational institutions could implement a structured *three-stage AI literacy program* which directly addressed students' concerns found in this study by organizing: (1) critical evaluation workshops to assess data reliability, (2) hands-on tool assessment activities to identify AI's limitations across tasks, and (3) workshops on ethical decision-making scenarios focusing on plagiarism and integrity. This can be achieved by planning and conducting awareness activities or workshops for both students and educators on how to optimally use AI tools in dealing with academic outputs. For example, based on findings that peer discussions encouraged adoptions, planned workshops could incorporate peer mentoring components, where experienced students demonstrate responsible practices and guide peers through ethical dilemmas.

Lastly, based on the impact of AI tool adoption linked to peers' influence, researchers may want to investigate how peer interactions, peer support networks, or collaborative discussions among peers influence AI tool adoption in various academic settings. Future research could experimentally test structured peer mentoring programs or collaborative AI learning groups and measure their impact on students' AI usage.

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3. **Research Ethical Consideration:** As a final research project submitted by one of the authors in partial fulfilment of the requirements for a postgraduate degree, under the close supervision by supervisor, this research was conducted in full accordance with the university's research ethical guidelines.
4. **Declaration of Generative AI in Scientific Writing:** During the preparation of this work, the author(s) used Grammarly and ChatGPT, to proofread selected sections of the writing which aided the authors in reviewing and editing the relevant content as needed. However, the authors take full responsibility for the manuscript's content.

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Appendix A

Example Interview Questions

Domain / Stage	Attitude	Subjective Norms	Perceived Behavioral Control	Others
Initial Stage: Pre-assignment / Brainstorming	1. How does AI help in deciding topics for your assignment? 2. Why do you think it is relevant to have ethical considerations during brainstorming for assignments?	1. How have your peers impacted your perception of using AI to help with your assignments? 2. Why do you value the opinions of your peers regarding the use of AI for completing your assignments?	1. How confident are you in your ability to actively consider ethical implications while brainstorming AI solutions? 2. Do you think it is easy to follow AI ethics when using AI for your assignment? 3. What makes you feel that it is hard to follow ethical considerations when using AI for your assignment?	1. Based on your previous experience, are you satisfied with the performance and results of AI tools? 2. Based on your experience, what are the weaknesses of AI tools in academic work? 3. Are there any specific features or improvements you would like to see in AI tools to better support your academic needs? 4. To what extent do you believe ethical considerations are relevant when using AI tools to complete your assignments? 5. Why do you believe ethical considerations are relevant when using AI tools in assignments?

Middle Stage: Methodology / Literature Review	1. Do you find AI helpful in designing the methodology part of your assignment? Why? 2. Do you think using AI helps in writing literature reviews for your assignments? Why?	1. How have your peers affected your views on using AI for designing methodologies and writing literature reviews? 2. Why do you value the opinions of your peers regarding the use of AI in these stages?	1. Do you expect AI tools to provide relevant materials for your methodology and literature review? Why?	1. What factors influence your decision-making process when integrating ethical considerations into AI usage? 2. To what extent would you adjust your research methodology in response to ethical considerations?
Final Stage: Data Analysis / Discussion	1. Do you utilize AI tools in the final stage of completing your assignments? How? 2. Do you think it is important to consider ethical aspects of AI when using it to analyze your data? Why?	1. Do your peers' views affect your understanding of the importance of AI ethics in completing assignments? Why?	1. How confident are you in your ability to consider ethical considerations when using AI to analyze data and discuss findings? Why?	1. Are there any factors that make it difficult for you to use AI tools efficiently in the final stage of your assignment?
Proofreading / Paraphrasing	1. Do you think AI is helpful in paraphrasing and proofreading content? Why? 2. Have you had experience using AI to proofread and paraphrase your work? 3. What tool do you use for paraphrasing? Why? 4. What tool do you use for proofreading? Why?	1. Do your peers influence you to use AI tools for proofreading or paraphrasing? 2. Do your peers encourage you to consider ethical aspects when using AI tools to paraphrase or proofread? How?	1. Are you confident that AI tools facilitate proofreading and paraphrasing your academic work? 2. What makes you confident in using certain AI tools over others for these tasks?	1. Do you think it is important to consider ethical aspects when using AI for proofreading or paraphrasing? Why?