

Artificial Intelligence in Education: A Preliminary Study

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Abstract

Artificial intelligence (AI) is a rapidly advancing technology that is currently unfolding on internet platforms. This remarkable innovation has the potential to profoundly revolutionize our daily lives as humans, especially postgraduate students. AI is user-friendly and is able to facilitate students' research activities. However, issues such as copyright, high similarity index and plagiarism still exist. The core objective of this study is to confirm the variables and dimensions adapted from the literature with regard to users' self-efficacy in optimizing the use of AI in education via a preliminary study. A qualitative research methodology was employed for this study and selected participants were interviewed based on a set of semi-structured questions. The results show that the variables of trustworthiness, perceived mastery, social persuasion, and AI self-efficacy which incorporated the dimensions of assistance, anthropomorphic interaction, and technological skills were consistent with the literature. The findings of this study can shed light on how AI can be tailored to better serve postgraduate students' academic and research needs, fostering an environment that is both innovative and conducive. The next phase of this study is to conduct a pre-test and pilot test in order to validate the content and reliability of the research instrument. Any potential issues or limitations with the research variables and dimensions can be identified, and necessary adjustments can be made.

Keywords

Artificial Intelligence, AI, Education, Trustworthiness, Perceived Mastery, Social Persuasion, AI Self-Efficacy, Assistance, Anthropomorphic Interaction, Technological Skills

1. Introduction

The use of AI technologies has impacted our daily lives slowly but surely, especially

through the use of smartphones and its features, i.e., voice assistant. All these features have transformed the way people communicate, conduct daily life activities such as entertainment, teaching and learning, and much more with devices such computers, tablets or even mobile phones. A recent study in Malaysia found that students who incorporated AI chatbots into their learning experience reported a significant improvement in their quality of online learning (Neo, 2022). Furthermore, a study that examined the impact of AI in education at the Peninsula College Central Malaysia demonstrated how the rapid advancement of AI in education had changed the interaction among learners in their learning experience (Kaur, 2021). Having said that, Forbes (2023) highlighted that 65% of teachers are worried about plagiarism in their students' assignments. Undoubtedly, this is a genuine concern especially when students just "copy and paste" their findings without accurately evaluating and ensuring the information concurs with their tasks. We all know that students commonly depend on AI features, i.e., voice assistant which is generally unable to provide accurate information requested by their users (Hirvonen et al., 2023). Hence, the users are unable to identify and evaluate the accuracy of the information required to effectively complete their assignments. As such, it is vital for users to be skilled in evaluating the accuracy and trustworthiness of the required information in completing their tasks. This clearly indicates that in order to fill the gaps in understanding AI in education, further research is required. Therefore, this study intends to explore and confirm the variables and dimensions adapted from the literature with regard to optimizing AI in education.

2. Literature Review

The use of AI in education holds enormous potential for improving teaching and learning. Numerous studies have examined the various applications of AI in this area. Thus, the variables and dimensions are discussed in detail further in the following section and the summary of each variable and dimension's operational definition is provided in Table 1.

2.1. Trustworthiness

Trustworthiness is a crucial element used to assess the quality of information in the Information Success Model DeLone & McLean (2003). This parameter plays a significant role in determining the reliability of retrieved information. Numerous studies have highlighted the importance of trust in technology usage, especially as individuals gain access to vast amounts of information. However, the reliability of information still requires further discussion. Studies have described the element of trustworthiness in terms of the trust users have in the information gathered through technological means and researchers concur that trust is an essential component from which trustworthiness is derived (Lalumera, 2024). Therefore, in this study, trustworthiness is defined as users' belief in the reliability of the information gathered from AI applications. It is a complicated belief that focuses

heavily on information credibility, AI system dependability, and ethical concerns in their design and operation. For users to perceive an AI application as trustworthy, they need to experience that the information provided is consistently accurate, that it transparently explains how the AI arrives at its insights, and that people clearly understand how their data is used and protected (Balasubramaniam et al., 2023).

In the rapidly evolving digital landscape, the concept of trust has emerged as a cornerstone for the successful deployment and integration of AI in our daily lives and across various sectors. As discovered by many researchers, the interaction between AI services and products with other technologies and systems affects the level of trust based on continuous integration, interoperability, and the ability to enhance rather than disrupt existing services and products (Toreini et al., 2020). One of the most important variables is the quality of the interaction between humans and AI. These encounters, whether direct or indirect, have a significant impact on people's trust and willingness to use AI for decision-making in vital activities. Besides, a study by Opdahl et al. (2023) on trustworthiness in the field of journalism sheds light on the significant role played by AI in enabling the production of top-notch news.

2.2. Perceived Mastery

Perceived mastery is an important factor highlighted in various research studies to measure human behavior, particularly regarding the ability to retrieve information that use applications or technology. Several studies in this area have emphasized the importance of perceived expertise in explaining human behavior and technology usage. Perceived mastery can be defined as the users' level of proficiency in using AI applications. Previous studies related to perceived mastery have uncovered a fascinating correlation between individuals' self-perceived mastery in utilizing AI products and their tendency to integrate AI technology into their daily lives. It was observed that participants who regarded themselves as adept in engaging with AI products exhibited greater inclination toward embracing AI technology (Hong, 2022). Individuals with higher incomes and educational qualifications were also more likely to demonstrate this pattern of behavior (Munir et al., 2023). This finding highlights the considerable effect of socioeconomic considerations on individuals' perspectives as well as the probability to adopt AI technologies. It suggests that the interaction of an individual's economic status and educational background has a major impact on their perceived mastery with regard to use of AI products, which in turn affects their willingness to integrate such technology into their lifestyles. An interesting example of the measurement of emotions in humans is Ren et al.'s study (2022), which emphasized the role of perceived mastery in identifying emotions. The results of their study suggest that emotions related to academic pursuits may act as a mediator in the relationship between perceived teacher support and academic self-efficacy which sheds light on the complex dynamics of emotions in an academic context.

2.3. Social Persuasion

Social persuasion is an essential element that can be used to identify behaviors that influence individuals' attitude to performing any action. This parameter plays a significant role in determining how individuals interact with their surroundings. Numerous studies have highlighted the importance of social persuasion in technology usage, especially as individuals now have access to vast amounts of information. Social persuasion, in this study, is defined as the influence of other users in their close environment in using AI applications. Individuals' views and opinions about the implementation and utilization of AI technologies are strongly influenced by others in the community around them. A previous study reported an intriguing and significant relationship between individuals' levels of education and self-efficacy in dealing with AI technologies (Hong, 2022). In addition, Wang & Chuang (2024) discovered that social and environmental factors, as well as particular circumstances, setting, and being surrounded by certain individuals, significantly affects the shaping of individual self-efficacy. Individual consequences affect interpersonal influences and social environments, which in turn have a significant impact on people's behavior in work and home contexts. This shows that the environment plays a significant role in shaping individuals' behaviours, impacting their capacity to carry out tasks efficiently.

2.4. AI Self-Efficacy

AI self-efficacy has emerged as an important consideration in many research studies that assess user skills, particularly when it comes to using applications or technology. Numerous research studies have highlighted the critical role of AI self-efficacy in explaining people's skills in this area. AI self-efficacy, for this study, can be defined as users' beliefs in their own capabilities and their interaction with AI applications. In a previous study, AI self-efficacy was defined as the self-evaluation of a user's capabilities necessary to use AI technologies, extending beyond one's attitude toward the use of technology to demonstrate their abilities to interact with AI (Wang & Chuang, 2024). Users with a high level of confidence demonstrate higher capabilities than those who lack confidence in using AI as a platform to get information. Another education-related study found that higher digital competence among teachers is linked to a more positive attitude toward AI, which is independent of educational level, gender, age, experience, or field of study, where the respondents expressed a strong desire to employ AI but had limited personal experience with it (Galindo-Domínguez et al., 2024). This suggests that user abilities play a crucial role in determining how they will handle and leverage AI, particularly when they are confident in their ability to use it.

2.5. Assistance

In order to measure AI self-efficacy, assistance is one of the parameters that needs to be further explored where AI applications help people retrieve or find relevant information. Assistance can be defined as features in AI applications that assist

users to obtain current data and provide writing guidance. The level of assistance provided by these technologies determines their usefulness and effectiveness in enhancing human tasks and endeavors. A study by Wang & Chuang (2024) specified assistance as the degree to which individuals perceive AI technologies or products as helpful or valuable for their tasks. The use of AI has proven to be tremendously beneficial in a variety of areas, as it significantly increases the efficiency of performing various activities in daily life. In a different perspective, technology has been found to be exceptionally beneficial in supporting the elderly in Germany. A detailed study in this region has revealed that technology is perceived as a valuable ally for older adults, especially when it comes to accessing information or resources (Kamin et al., 2019). This proves that assistance can be considered a dimension in measuring AI self-efficacy towards trustworthiness in seeking information. The use of AI in our daily life activities will facilitate users in their decision making and problem solving using any available AI applications such as ChatGPT.

2.6. Anthropomorphic Interaction

Anthropomorphic interaction is an important factor identified in various studies to measure AI self-efficacy, particularly in retrieving information that use applications or technologies. Research studies have emphasized the importance of anthropomorphic interaction in explaining people's competencies. Anthropomorphic interaction can be defined as the capabilities of AI applications to interact with their users. In this study, anthropomorphic interaction specifically pertains to the capabilities of technology or AI applications in enabling users to interact with the applications effortlessly. This concept highlights the seamless nature of human-machine communication. One study defined the concept of anthropomorphic interaction as the extent to which individuals perceive AI technologies/products as having human-like characteristics (Wang & Chuang, 2024). The concept of anthropomorphic interaction, a term that probes the complicated dynamics between humans and AI technologies, serves as a key point of interest for researchers and technologists alike. Another study on anthropomorphic interaction by Kim & Im (2023) showed that the way people react to anthropomorphic creatures is influenced by how they view human beings, such as by appearance, cognitive abilities, and emotional capabilities. Users tend to judge people by the above-mentioned characteristics and apply these same criteria to judge AI. This study aims to develop a comprehensive understanding of the complex, multi-layered interactions that make up the human experience in the age of AI. This highlights the need for a balanced approach to the development and implementation of AI that respects human nature while pushing the boundaries of innovation.

2.7. Technological Skills

The importance of technological skills cannot be overstated in contemporary research, especially with regard to how individuals navigate and use different applications or technological platforms. A large number of studies have meticulously

underlined the important role of technological skills as a dimension of AI self-efficacy. Technological skills can be defined as the users' level of self-efficacy and the ability to explore when using AI applications. An extensive review of studies on the role of users' background knowledge in conjunction with their level of confidence when harnessing the capabilities of AI products found intriguing results. A study on the perceived technological competency among graduate students in the Philippines found that graduate students demonstrated a significant level of competency in utilizing technology; a skill that is becoming increasingly important in the modern digital age (Panoy et al., 2022). On the other hand, Wang & Chuang (2024) highlighted a key factor in the assessment of AI self-efficacy. Users with strong AI self-efficacy were found to be able to use AI technologies effectively by utilizing their technical skills. Therefore, a good technical understanding is essential and individuals should acquire the necessary knowledge to operate AI applications or at least have basic IT skills. Therefore, the understanding of and interplay between individuals' background knowledge of AI will enhance their confidence in using AI technologies, which presents a nuanced perspective on how individuals integrate these advancements into various aspects of their lives. This analysis not only highlights the importance of education and experience in fostering a conducive environment for AI adoption but also underscores the personal and social benefits of building digital literacy with AI in the community as a whole.

The summary of the operational definition of each variable and dimension used in this study is described in **Table 1** below:

Table 1. Definition of each variable and dimension.

Variable/ Dimension	Operational Definition
Trustworthiness	Trustworthiness refers to the users' belief in and the reliability of the information received from AI applications.
Perceived Mastery	Perceived mastery refers to the users' level of proficiency in using AI applications.
Social Persuasion	Social persuasion refers to the influence of other users in their close environment in using AI applications.
AI Self-Efficacy	AI self-efficacy refers to the users' belief in their own capabilities and their interaction in using AI applications.
Assistance	Assistance refers to AI applications' assist features for users to obtain current data and provide writing guidance.
Anthropomorphic Interaction	Anthropomorphic interaction refers to AI applications' capabilities during interaction with users.
Technological Skills	Technological skills refer to the users' level of self-efficacy and ability to explore AI applications.

3. Methodology

The process of conducting the preliminary study is adopted and adapted from

Mohd et al. (2012). The process is shown in **Figure 1** below.

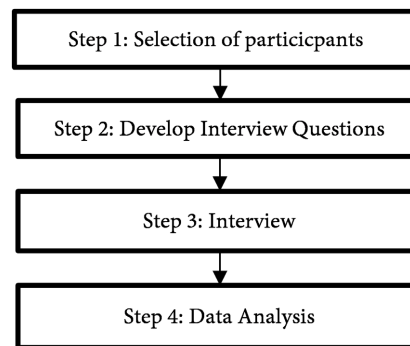


Figure 1. Preliminary study process.

As shown in **Figure 1**, the preliminary study process consists of four steps including the selection of participants, developing of interview questions, the interview itself, and data analysis. At the initial stage of this study, the participants were identified for selection. The inclusion and exclusion criteria used in selecting the participants were replicated from Garg (2016). The selection of participants focused on postgraduate students who are actively involved in research as they would be able to illustrate how AI is helping them to seek information in the course of their research. Upon satisfaction of the selection criteria, the study had to identify the numbers of participants involved. Fugard and Potts (2015) emphasized that participants can range between 2 to 400 or even more until the data saturation point is reached.

The next step was to develop the interview questions. 17 semi structured interview questions were developed comprising close ended questions adapted from previous literature were mapped with the ascertained variables and dimensions.

All interview questions used in this study are shown in **Appendix 1**. The third step of the process was the interview session itself. Face-to-face interviews were conducted on 30th May 2024 where the interview lasted about 30 minutes per participant in different places. Only three participants were interviewed as the second and third participant's answers were found to be consistent in which no additional variables and dimensions were mentioned. Therefore, this fulfilled the saturation point as mentioned by Fugard and Potts (2015).

The final stage in the research process was data analysis where the thematic approach was used to analyze the interview data. Based on Vaismoradi et al. (2013), thematic analysis is a method used to analyze life stories and narratives to discover and clarify patterns or themes gleaned from the interview responses. This approach is well-regarded for its ability to dredge up detailed and providing researchers with the necessary tools for various qualitative studies (Braun & Clarke, 2006; Vaismoradi et al., 2013). This thematic analysis is specifically used to confirm all the variables/dimensions used in this study. In measuring the relationship between variables/dimensions, the authors then use bibliometrics analysis and systematic literature review (which is not included in this paper) as this paper is focused on the

preliminary study only. In order to check and confirm the relationship between variables, Nvivo is being used to analyze each of the variables. The results from the interview were manually mapped against the study variables and dimensions. Hence, this preliminary study is an attempt to confirm the variables and dimensions outlined in the research framework.

4. Findings

The findings from this preliminary study are presented in the following discussion from sub sections 4.2 to 4.8 which covers the participants' responses in the semi-structured interview employed to validate the conformity of each of the participant's responses to each variable and dimension studied.

4.1. Participant Profile

The total number of participants selected for this study was three, all of whom used AI in their research. Among them, two were research students, while one was enrolled in a coursework programme in universities in Malaysia as shown in **Table 2**.

Table 2. Participant profile information.

Participant	Demographic Information			
	Age	Level of education	Semester	Type of university
P1	26	Master (by research)	2	Local university
P2	40	PhD	5	Local university
P3	30	Master (by coursework)	3	Private university

4.2. Trustworthiness

Table 3 shows the participants' statements highlighted important points such as, "Yes trusted. But I still like to double check and go through the articles first", "AI is helpful in providing accurate information but sometimes I still have to check other resources" and "I trust AI information and I compare it with other resources". These show the presence of the element of trustworthiness. The participants' statements align with the study's definition, as it demonstrates individuals' belief and trust in the information they receive through AI applications. In addition to these findings, the participants also rated this dimension at 2.67 out of 3.00 which confirms their interview responses.

Table 3. Results for trustworthiness in the use of AI applications.

Participant	Participant Judgment
P1	"Sometimes but I guess to get the most accurate answer is to improve the prompt. Using the right tools such as Scholarly and Consensus, yes trusted. But I still like to double check and go through the articles first. "

Continued

P2	<p>“In some cases yes, AI is helpful in providing accurate information but sometimes I still have to check other resources.”</p> <p>“I trust AI information and I compare it with other resources. AI produces authentic, genuine data. AI provide me a correct answer. AI understands what I’m looking for compared to other resources.</p>
P3	<p>AI is more convenient in term of interface. In some cases, online databases are accurate but need to check all the information received from the platform. But, I still need to double check information received from AI.”</p>

4.3. Perceived Mastery

Table 4 shows the findings of the interview responses where the participants’ statements highlighted important points such as “*still have knowledge without using AI*”, “*increase productivity*” and “*an experience in training to use AI*”, showing the presence of perceived mastery. Therefore, the participants’ statements were aligned with the study’s definition of perceived mastery. This is evident in their demonstration of high proficiency in using AI applications. which is reflected in the 3.00 score given by the participants related to this dimension. Based on these findings, this study highlights perceived mastery as an important dimension that needs to be considered.

Table 4. Results for perceived mastery in the use of AI applications.

Participant	Participant Judgment
P1	“I use AI to seek information and increase my daily productivity , making work easier.”
P2	“I think people can still have knowledge without using AI. ”
P3	“I use AI because I received quick response and get data. Yes I think like an experience in training and use for daily life to use AI. Sometimes it violates ethics... we cannot use our input and sometimes information is overload.”

4.4. Social Persuasion

Table 5 shows the participants’ statements highlighted important points such as “*influencers on social media*”, “*friends*” and “*my professor and my friends*”, proving the presence of social persuasion. The statements made by the participants in this research synchronize perfectly with the study’s established definition of social interaction. This definition illustrates how individuals’ perceptions regarding the utilization of AI applications are significantly shaped by the influence of those in their immediate surroundings. Though not as high as the previous 2 scores, the participants’ response to this dimension at 2.33 still reveals the importance of this particular dimension.

Table 5. Results for social persuasion in the use of AI applications.

Participant	Participant Judgment
P1	“My influence comes from influencers on social media advocating its benefits.”
P2	“Yes my friends influence me sometimes when I am stuck with my work.”
P3	“I intentionally found AI in social media. My professor, my friends influence me when they discuss AI to use for daily life. They recommend the use of AI.”

4.5. AI Self-Efficacy

Table 6 shows the participants’ statements highlighted important points such as “*able to use and interact with AI*”, “*makes me learn more*” and “*feel comfortable*”, which highlights the presence of AI self-efficacy. The participants’ statements align with the study’s definition of perceived mastery, which refers to users’ confidence in their proficiency with technology, specifically AI, and their capability to navigate various applications. Rated at 2.67, this variable aligns with the interview responses and highlights the importance of this variable.

Table 6. Results for AI self-efficacy in the use of AI applications.

Participant	Participant Judgment
P1	“Yes, I am able to use and interact with AI . I gain and enhance my knowledge on AI by reading, watching videos and attending talks.”
P2	“Sometimes I have to rephrase the questions as the AI does not understand what I want. It helps me a lot in figuring out coding problems that I’m facing and makes me learn more. ”
P3	““I feel comfortable, its more professional, well designed and I’m still using it in my daily life. I use AI in working. When I communicate with my colleagues, I use AI such as ChatGPT where they come from various countries. ChatGPT Its more friendly compared to other platforms.”

4.6. Assistance

Table 7 shows the participants’ statements highlighted important points such as “*help me to easy to understand*”, “*it helps me in my grammar*” and “*AI help me to design my research*”, showing the presence of assistance. The statements showed that assistance, in the context of supporting academic pursuits, aligned precisely with the parameters set for this particular study. Therefore, the term “assistance” within this study’s framework specifically refers to the degree to which users perceive AI products and technologies as beneficial or conducive to their various academic endeavors. This was strongly supported by 3.00 rating given by the participants for this dimension proving how vital this dimension is in the usage of AI applications.

Table 7. Results for assistance in the use of AI applications.

Participant	Participant Judgment
P1	“I’m using Inastatext to rephrase wording which help me to easy to understand. ”
P2	“Because I usually use AI when I can’t construct properly what I need to do for my studies, not for the study itself. Yes, it helps me in my grammar is wrong, and seeks information that I need fast.”
P3	“I’m doing my research. I’m using difference resources for my study. AI helps me to design my research. AI is convenient for grammar. I can trust the grammar produced from AI.”

4.7. Anthropomorphic Interaction

Table 8 shows Participants’ statements highlighted important points such as “*I am comfortable interacting with AI*”, “*I don’t think AI can be treated as human*” and “*AI can replace human*”, which show the presence of anthropomorphic interaction in this study. The statements provided by the participants illustrate how anthropomorphic interactions align with the definition outlined in this study which explores the extent to which individuals perceive anthropomorphism when engaging with AI technologies and products. This dimension was rated at 2.67 which again underscored its importance in the context of this study.

Table 8. Results for anthropomorphic interaction in the use of AI applications.

Participant	Participant Judgment
P1	“I use AI for paraphrasing, grammar checking and improving the flow of my writing. Yes, I am comfortable interacting with AI. ”
P2	“I implement them in my studies and day-to-day life. Yes, I am comfortable. No, I don’t think AI can be treated as human. ”
P3	“Yes in some cases, AI can replace humans but the productivity will be higher, even if AI replaces humans, it will give positive output.”

4.8. Technological Skills

Table 9 shows the participants’ statements highlighted important points such as “*My knowledge and level of confidence make it easier for me to use AI*”, “*It has made me more knowledgeable*” and “*the AI outcome will be adequate*”, showing the presence of technological skills. In this study, the participants expressed an increased sense of knowledge and confidence when it comes to using AI as part of their information seeking activities. This aligns with the definition which takes into account their background knowledge and level of confidence in utilizing AI technologies and products.

Table 9. Results for technological skills in the use of AI applications.

Participant	Participant Judgment
P1	“My knowledge and level of confidence make it easier for me to use AI and maximize its benefits for my work. I sometimes use AI such as Scholarly and Consensus to help me narrow down the articles for my research.”
P2	“It has made me more knowledgeable but it doesn’t gain my confidence as much as I still look at other resources not AI related. I implement them in my studies and day-to-day life.”
P3	“Using AI can have positive and negative impacts. if we continuously use AI, we will lose our cognitive competencies and we will become too dependent on AI, but if we cannot access AI, we will be in trouble. The positive thing is the AI outcome will be adequate. ”

5. Discussion and Conclusion

The study discusses how AI is rapidly changing daily life through the use of AI-driven applications to improve efficiency and convenience by exploring how AI has helped postgraduate students achieve their academic and research goals. In order to confirm the variables and dimensions that affect the use of AI and the requirements of postgraduate students, the supportive environment was examined. The results showed that expertise, technological skills, and trustworthiness were consistent with previous research (Seufert, Guggemos, & Sailer, 2021). The methodology adopted for this study involved the collection of data from a diverse group of participants who were actively employing AI technologies in their research endeavors. The findings revealed a consensus among all the participants that there exist several factors which significantly influence their decision to utilize AI tools in their research fields. The outcome from interview has been summarized as shown in Table 10 where the importance of variables and dimensions is highlighted.

Table 10. Below provides the summary for each dimension.

Variables	Dimensions	Participants (P)	Findings
			Semi-Structured interview responses
Trustworthiness	-	P1	<i>P1</i> “Using the right tools such as Scholarly and Consensus, yes trusted. But I still like to double check and go through the articles first. ”
		P3	<i>P3</i> “I trust AI information and I compare it with other resources.
Perceived Mastery	-	P1	<i>P1</i> “I use AI to seek information and increase my daily productivity , making work easier.”
		P2	<i>P2</i> “I think people can still have knowledge without using AI. ”
		P3	<i>P3</i> “I use AI because I received quick response and get data. Yes I think experience in training and use for daily life to use AI
Social Persuasions	-	P3	<i>P3</i> “Intentionally, my interest and I found AI in social media. My professor, my friends influence me when discuss about AI to use and use it for daily life. They recommend me to use AI.”

Continued

			<p>P1 “I’m using Insta-text to rephrase wording which helps make it easy to understand.”</p>
	Assistance	P1	<p>P2 “Because I usually use AI when I can’t construct properly what I need to do for my studies, not for the study itself. Yes, it helps me if my grammar is wrong, and seeks information that I need fast.”</p>
		P3	<p>P3 “I’m doing my research. I’m using difference resources for my study. AI helps me to design my research. AI is convenient for grammar I can trust the grammar produced from AI.”</p>
	Anthropomorphic Interaction	P1	<p>P1 “I use AI for paraphrasing, grammar checking and improving the flow of my writing. Yes, I am comfortable interacting with AI.”</p>
AI Self-Efficacy		P3	<p>P3 “Yes in some cases, AI can replace human but the productivity will be higher, even if AI replaces humans, it will give positive output.”</p>
		P1	<p>P1 “My knowledge and level of confidence makes it easier for me to use AI and maximize its benefits for my work. I sometimes use AI such as Scholarly and Consensus to help me narrow down the articles for my research.”</p>
	Technological Skills	P1	<p>P2 “It made me more knowledgeable but it doesn’t gain my confidence as much as I still look at other resources not AI related. I implement them to my studies and day-to-day life.”</p>
		P3	<p>P3 “It can have positive and negative impact in using AI. if we continuously use AI, we will lose our memories like we depend on AI, but if we cannot access AI, we will in trouble. The positive thing is the AI outcome will be adequate.”</p>

The summary outlines the various dimensions, including the outcomes received from participants, such as the accessibility of AI tools, the ease of integration of such technologies to existing research methodologies, the extent to which AI tools enhance the efficiency and effectiveness of research outcomes, and the overall impact of AI on the quality of academic research.

Based on the outcomes of this preliminary study, the following stage of this research will include a pre-test to measure content validity. Apart from that, the research will also implement a pilot test intended to measure the reliability of instruments that measure the variables and dimensions. **Figure 2** shows the conceptual framework of the research.

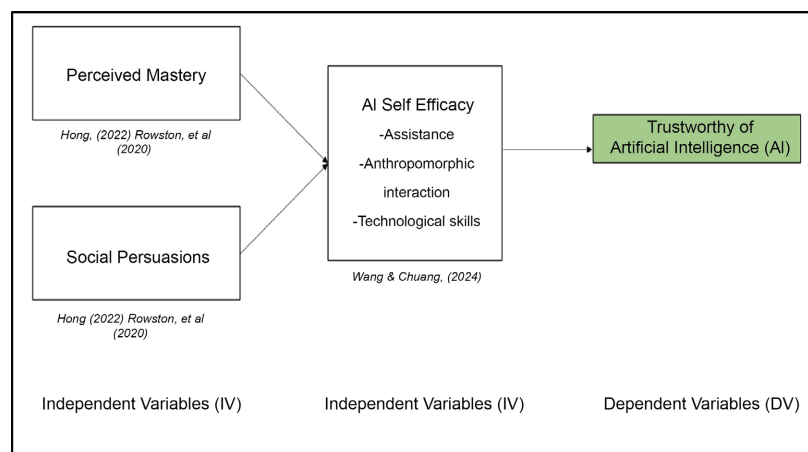


Figure 2. Conceptual framework of the follow up study.

Figure 3 shows the process of the follow-up research will be conducted. The research will start with the literature review and end with report writing. The findings of the preliminary study (this current study) will form the basis for the variables and dimensions being studied. For the purpose of data collection, this study used purely qualitative methods, including pre-test and pilot tests. Once this is done, actual data collection will commence, followed by data analysis using suitable methods. The findings will be reported, from which conclusions will be drawn and recommendations will be made.

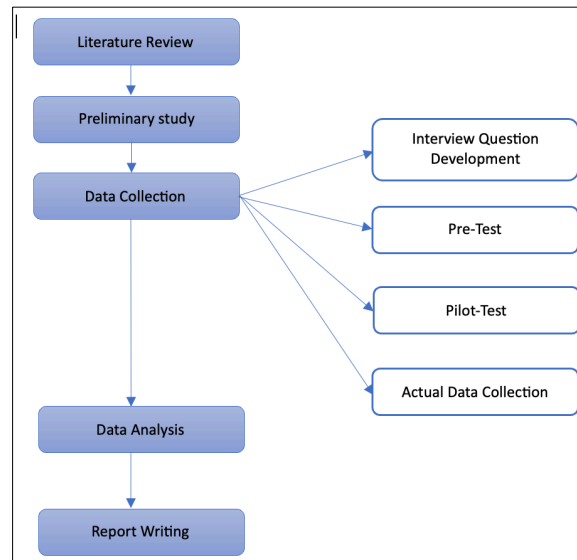


Figure 3. Framework of the research process.

This follow-up study will also underscore the importance of addressing concerns around trustworthiness, particularly in the context of AI implementation for research purposes and ethical considerations. For example, one participant highlighted that ethics play a crucial role as in *Sometimes we are in violation of ethics*. Hence, ethics, as a determinant, must be taken into account indicating that ethical considerations could significantly influence or even enhance the perception of trustworthiness in the usage of AI. This insight suggests that by integrating ethical principles into AI development, the level of trust that individuals have in AI technologies can be elevated. Based on this, ethics can be considered as a vital variable to be subjected to in-depth research.

In the workplace environment, individuals may be willing to sacrifice important work in exchange for benefits such as more money or free time. It is, thus essential to acknowledge the ethical significance of meaningful work and to assess all factors that impact user ability to engage in meaningful work through an ethical lens, regardless of their perceived importance (Bankins & Formosa, 2023). Another study on ethics in the education explored ethical elements in the use of AI (Foltynek et al., 2023). The critical need to equip stakeholders with the necessary skills and knowledge for the ethical use of AI tools, alongside the imperative need to create

and enforce educational policies that tackle both the opportunities and challenges presented by AI in education, cannot be overstated. Hence, the framework presented in **Figure 2**, explores the relationship between perceived mastery, social persuasion, and trustworthy. By focusing on trustworthy as the dependent variable, the research aims to investigate the influence of perceived mastery on AI self-efficacy. Furthermore, it seeks to examine the impact of AI and social persuasion on AI self-efficacy in a comprehensive and detailed manner. In terms of ethics, the study demonstrates that measuring trustworthy in the context of AI usage needs to be explored as well.

The preliminary study conducted has drawn the adoption from theories, i.e., Social Cognitive Theory (SCT) and Information System (IS) Success Model. The SCT highlights the intercorrelation between personal characteristics, behavior, and the environment, which influence the role of the individual in building their own experience and outcomes (Bandura, 1986 & 2001). Meanwhile, the IS Success Model, an established model in the field of systems analysis, has been employed to accurately measure the composite elements of trust (Delone & McLean, 2003). Therefore, the findings from this study are consistent with both concept of these theories. This study also has led to theoretical contribution.

In essence, this preliminary study serves as a basis for further research in this area, offering initial insights into the significant impact of AI tools on the research practices of postgraduate students. It lays the ground for in depth studies into the more effective use of AI; not only to enhance students' research skills but also to transform the traditional methods used in academic research. On the other hand, several limitations were highlighted in this study one of which is that the study only focused on research universities. Another limitation involved the difficulty in identifying participants who are actively using AI applications as tools in their research. Besides that, challenges also emerged in getting a consensual understanding from all the participants on the operational definition for each variable and dimension as each had a different understanding of these variables and dimensions before the interview session.

The outcomes of this study are expected to contribute valuable perspectives to the ongoing discourse on the integration of AI technologies in theoretical, empirical and practical. As for the theoretical where the researcher can expand on studies to have a better grasp of how AI self-efficacy influences information assessment ethically. As for empirical, researchers' also has a potential to get precise data and engagement for reliable data. For instances, as for practical contribution, the library and information center can optimize tools, guidance to build trust on AI for giving better user experiences. It is hoped that the study findings will enrich the academic community's comprehensive understanding of the potential of and challenges related to the use of AI in scholarly research. As this is an exploratory study with a very small number of participants, this study, in a small way, highlights the critical nature of issues related to trustworthy, especially when it comes to utilizing AI for research and ethical deliberations. Therefore, incorporating

ethics as an additional dimension can also be considered to measure trustworthy in the use of AI for future research in various fields. By focusing on the responsible and reliable implementation of AI technology, the inclusion of ethical considerations related to AI usage can be ensured. This will further enhance the credibility and validity of research conducted in different domains.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix 1

No.	Variables and dimensions	Semi Structured Question
1	Perceived Mastery	<ol style="list-style-type: none"> 1. Have you used AI to seek information? 2. How does your skill in using AI affect other people who lack AI literacy? 3. How does your skill in using AI affect your productivity in your daily life routine (work, study, etc.)?
2	Social Persuasions	<ol style="list-style-type: none"> 1. Who influenced you to use AI? 2. Do your friends/PG community influence you in the use of AI?
3	AI Self Efficacy	<ol style="list-style-type: none"> 1. What do you think about your ability to use and interact with AI? 2. How do you increase your knowledge in AI applications which enhanced your ability to utilize the AI applications.
4	Assistance	<ol style="list-style-type: none"> 1. On the scale of 1 to 5, how do you rate AI in facilitating your studies and why? 2. Is AI helping you in your studies? (grammar, seeking info, etc.)
5	Anthropomorphic interaction	<ol style="list-style-type: none"> 1. To what extent do you use AI when you seek information? 2. Do you feel comfortable using AI? 3. Can AI become a threat to human beings?
6	Technological Skills	<ol style="list-style-type: none"> 1. How does your knowledge and level of confidence impact the use of AI? 2. How has your technological skills changed your information skill using AI?
7	Trustworthy	<ol style="list-style-type: none"> 1. Do you trust the information given by AI? 2. Does AI provide relevant answers to your questions? 3. Do you think AI is helpful in providing accurate information from dependable sources?