International Journal of Didactical Studies
Volume 5, Issue 2, 2024
https://doi.org/10.33902/ijods.202427763

Research Article

Predictors of student attitudes towards artificial intelligence: Implications and relevance to the higher education institutions

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Artificial intelligence [AI] is essential, especially in education. However, students still need to be more modest about utilizing it as a tool in the learning process. This study investigated the students' attitudes toward AI, the level of AI literacy, and AI self-efficacy. Also, the study intends to determine the predictors of student attitudes toward AI. Using a cross-sectional research design, the study assessed the perspectives of 708 voluntary students using a purposive sampling technique. With the help of Google Forms, the proponents used an online survey to gather the necessary data for the study. After collecting enough data, the data analyst employed descriptive and inferential statistics. Results show that regarding attitudes towards AI, the cognitive component got a remark of "agree"; however, in the case of affective and behavioral components, they both garnered a "moderately agree" remark. The students' AI literacy was "moderate," and their AI self-efficacy was the same. Also, the study observed significant variations in the perspectives, attitudes toward AI (use of any form of AI in learning, college/ department, year level, and gender), and levels of literacy (available gadgets at home, use of any form of AI in learning, and gender) and self-efficacy (available gadgets at home, use of any form of AI in learning, and gender). Moreover, the statistical analysis also showed a low to moderate relationship of student attitude, literacy, and self-efficacy. Linear regression confirmed the relationships between AI literacy and AI self-efficacy as significant predictors of student attitudes toward AI. The proponents offered some implications at the end of the study.

Keywords: Predictors, Artificial intelligence, Student behavior, AI literacy, AI self-efficacy

Article History: Submitted 16 March 2024; Revised 26 May 2024; Published online 24 June 2024

1. Introduction

Technology is becoming an integral part of education. In the past decades, AI has started integrating with different systems and processes in the field. AI fascinates students and can potentially transform various aspects of society, including education.

The acceptance of AI in education has different perspectives from that of students. Since this is a new matter and topic at hand, Yüzbaşıoğlu (2020) resolved that the students in his study have insufficient knowledge about AI. However, they are willing to improve their knowledge regarding this matter. However, a previous paper by Chan and Hu (2023) stated that by understanding the students' perception of generative AI, educators and policymakers can adapt GenAI technologies to address some needs and concerns of students while promoting effective learning outcomes in the institution. Students can appreciate the convenience and efficiency of AI-powered tools and applications in their learning, such as virtual assistants, learning platforms, and even grading systems. To justify this, Chen et al. (2023) tried to

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How to cite: Asio, J. M. R. & Gadia, E. D. (2024). Predictors of student attitudes towards artificial intelligence: Implications and relevance to the higher education institutions. *International Journal of Didactical Studies, 5*(2), 27763. https://doi.org/10.33902/ijods.202427763

investigate AI student assistants in the classroom. They revealed the potential for chatbots as essential student assistants. By this means, chatbots engage and respond as a conventional learning tool for communication and conversation to teach basic concepts and provide educational resources. In addition, reviews from past papers on the perspectives of other studies regarding AI also brought exciting prospects. For instance, the systematic review on AI of Zhai and Wibowo (2023) identified some gaps. First was the debate and problem-solving skills in university education that were overlooked in the AI system design and the relevance of embedding culture, humor, and empathy functions in the AI system. Another one by Young et al. (2021) stated that the public conveyed positive attitudes toward AI but had many reservations and still preferred supervision by a human. Other researchers also developed some measures to quantify the attitudes of individuals toward AI. For example, Chai et al. (2021) developed a survey questionnaire to measure behavioral intentions to learn AI among students. They created a measure that contained five factors, which focused on self-efficacy in learning AI, readiness, perception of the use of AI for social good, AI literacy, and behavioral intention. They concluded that all factors could predict the intention of students to learn AI, whether directly or indirectly. A local study by Asirit and Hua (2023) in the Philippines mentioned that AI usage for academic and personal purposes is usually modest.

Nevertheless, some students express their concerns regarding the mechanisms and effects of AI on the education system. Although AI is slowly transitioning and migrating to every educational system, students often see AI as a tool that can make their educational experience more exciting and memorable. A past study by Kong et al. (2022) employed two AI courses to help build conceptual understanding among university students. After the course completion, the AI literacy courses lowered the barrier to entry for AI literacy and addressed the public need. In a previous article, a group of researchers explored the practical application of AI in business communication for students. They suggested that students must develop AI literacy to succeed in the workplace (Cardon et al., 2023). Another research study investigated users' competencies for interacting effectively with interactive AI. Based on the findings, the research became a basis for a competency and design framework to lay the foundation for future references (Long et al., 2020). However, Ng et al. (2022) mentioned that schools began to use AI-enabled technologies to help students' personalized learning and decrease teachers' administrative work. This step proves to be the turning point of AI utilization in the educational system. The outcome will genuinely benefit the institution, especially the students. This event will enhance their learning experience. Nevertheless, in a scoping review, they revealed that research on AI literacy in higher education was still young and needs more refinement in terms of how to define AI literacy as well as what context should be taught to non-experts in the field (Laupichler et al., 2022). To provide a better perspective, one paper even developed an AI literacy scale to analyze AI literacy, teaching and learning, and the evaluation of AI in education (Lim & Lee, 2022).

Another unique feature of AI that students overlook is the development of self-efficacy. This innate ability of an individual to know their capacity to produce the necessary output becomes an integral aspect of feature of AI. For instance, an experimental study showed that using AI-based chatbots in the review process of public health courses can improve students' academic performance, self-efficacy, learning attitude, and motivation (Lee et al., 2022). Another previous experiment also proved the improvement of students' self-efficacy with the help of AI technologies (Yilmaz & Yilmaz, 2023).

In addition, Wang and Chuang (2024), in their development and validation of an AI self-efficacy scale, found that the scale had an excellent fit, reliability, convergent, discriminant, content, and criterion-related validity. It also positively correlates with AI self-efficacy construct and motivated learning behaviors. Another scale development by Wang (2021) showed that a positive relationship exists between individuals' AI use self-efficacy scores and AI-related knowledge/skills learning behavior among the respondents. However, some researchers believe AI capabilities could indirectly enhance students' critical thinking awareness by strengthening their general self-efficacy and learning motivation. Furthermore, general self-efficacy affects the formation of learning motivation and critical thinking awareness (Jia & Tu, 2024).

Shneiferman (2020) also emphasized the relevance of human-centred AI (HCAI) regarding reliability, safety, and trustworthiness. Also, achieving the goals of HCAI can increase human performance while supporting human self-efficacy, mastery, creativity, and responsibility. In the Philippines, a recent paper by Obenza et al. (2024) investigated the mediating effect of AI trust on AI self-efficacy and attitude toward AI of college students. It revealed that AI self-efficacy was high and AI trust mediates the relationship between AI self-efficacy and attitude toward AI.

Based on the literature reviews, there needs to be more regarding the association of student attitudes, AI literacy, and AI self-efficacy in the local context. Most of the reviewed literature was foreign, and the proponents only read a few published local literature, which also needed to be connected with the primary

subject matter. Thus, the proponents decided to investigate the association of the student's attitude towards AI and its possible predictors since there is yet a research paper that dwells on this particular aspect of AI research.

2. Method

2.1. Research Design

This study employed a quantitative – cross-sectional research design for college students from the academic year 2023-2024. Cross-sectional research is a type of design wherein a researcher gathers data from different entities at a single point to comprehend a particular phenomenon or event. According to Wang and Cheng (2020), cross-sectional studies are observational researches that assess data from a specific population at a single point in time. Since the current study intends to investigate the predictors of attitudes toward AI from students at a specific time, the research design is appropriate and applicable.

2.2. Participants

The study's population came from a local higher education institution in Olongapo City, Philippines. Using a purposive sampling technique, the study's proponents garnered 708 voluntary participants from an online survey using the Google form.

To be qualified as a participant of the study, they need to be (a) currently enrolled in the academic year of 2023-2024, (b) a bona fide student of the participating institution (with at least two semesters enrolled in college, (c) a full time and regular student, (d) has access to the internet, and (e) has gadget(s) to participate in the online survey. On the other hand, those criteria that will disqualify them are (a) not enrolled in the current academic year, (b) students from other higher education institutions in the locality, (c) part-time and irregular students, (d) no internet access, and (e) no gadget(s).

The proponents observed data privacy and ethical considerations during the online survey, so no participants were harmed in any way or by any means. Table 1 highlights the demographic characteristics of the student respondents.

2.3. Instruments

The proponents utilized and adapted two (2) research instruments in the study. The first one came from the survey of Suh and Ahn (2022), wherein they developed and validated a scale measuring student attitudes toward AI, also known as Student Attitudes toward AI (SATAI). The final scale contained three primary variables: behavioral, cognitive, and affective components, including 26 items. The construct reliability of the scale ranges from .907 to .944.

The second one came from the paper of Carolus et al. (2023), where they developed a meta-AI literacy scale. The proponents considered two important domains in their study: AI literacy and AI self-efficacy. AI literacy has 19 items, while AI self-efficacy contains six items. The Cronbach reliability result ranged from .70 to .90.

The modified instrument also went to pilot testing, and based on the Cronbach reliability test performed by the proponents, it yielded an overall coefficient of 0.989, which is highly reliable.

Before the survey began, the proponents sent a letter to each college informing them that a team of researchers would conduct an online survey of students. After receiving their approval, the proponents contacted the research coordinators for each college. They sent an online Google form link that they would send to program coordinators and then to their respective students at their earliest convenience. The data-gathering period was between August to November 2023.

2.4. Data Analysis

The proponents employed descriptive and inferential statistics to achieve the study's aim. The study used MS Excel for tallying, classification, tabulation, and basic descriptive statistics analysis, such as frequency, percentage, and mean distribution. On the other hand, the proponent used SPSS 23 for inferential statistics like *t*-test, Analysis of Variance [ANOVA], Pearson-R Moment of Correlation, and linear regression analysis. The proponents patterned the responses of the students to a five (5) point Likert scale, which comprised (1) strongly disagree, (2) disagree, (3) moderately agree, (4) agree, and (5) strongly agree. The assigned responses described the students' attitude toward AI.

Table 1
Demographic characteristics of the participants

Characteristics	*Frequency*	*Percentage*
College		
CAHS	95	13.4
CBA	167	23.6
CCS	238	33.6
CEAS	89	12.6
CHTM	119	16.8
Year Level		
First Year	188	26.6
Second Year	161	22.7
Third Year	144	20.3
Fourth Year	215	30.4
Age		
Less than 20 years old	346	48.9
21 – 25 years old	330	46.6
26 – 30 years old	16	2.3
31 years old and above	16	2.3
Gender		
Female	380	53.7
Male	315	44.5
Prefer not to say	13	1.8
Available Gadgets at Home		
Laptop/PC.	467	66.0
Smartphone/ Tablet/ IPAD	241	34.0
GPA from the previous year		
75-79%	16	2.3
80-84%	147	20.8
85-89%	301	42.5
90-94%	223	31.5
95% above	21	3.0
Used Any form of AI in the study		
No	546	77.1
Yes	162	22.9
Total	708	100.0

3. Results

The main aim of this study is to determine the student's perspectives towards AI. At the same time, the predictors associated with the student's attitude toward AI should be analyzed. The following tables below show the results of the study.

Table 2
Student attitudes towards AI in terms of cognitive components

Statement	*Mean*	*Descriptive Interpretation*
1. It is essential to learn about AI in school.	3.61	Agree
2. AI class is important.	3.29	Moderately Agree
3. Lessons about AI should be taught in school.	3.45	Agree
4. Every student should learn about AI in school.	3.46	Agree
Overall Mean	3.45	Agree

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Moderately Agree; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree.

Table 2 provides a comprehensive view of the students' attitudes toward AI regarding cognitive components. Statement 1, which received the highest mean score of 3.61, indicates a strong agreement among students. Conversely, statement 2, with the lowest mean score of 3.29, suggests a slightly lower level of agreement. The overall mean for the student attitudes toward AI regarding cognitive components was

3.45, reflecting a general agreement. This consistent agreement among the students underscores the importance of AI education. It also signals a positive attitude towards integrating AI-related content into the school curriculum, indicating that the surveyed students value learning about AI and believe it should be an integral part of their educational experience.

Table 3
Student attitudes towards AI in terms of affective component

Statement	*Mean*	*Descriptive Interpretation*
1. AI is essential for developing society.	3.49	Agree
2. AI makes people's lives more convenient.	3.69	Agree
3. AI is related to my life.	3.05	Moderately Agree
4. I will use AI to solve problems in daily life.	2.77	Moderately Agree
5. I will need AI in my life in the future.	3.19	Moderately Agree
6. AI helps me solve problems in real life.	2.90	Moderately Agree
7. AI is necessary for everyone.	3.00	Moderately Agree
8. AI produces more good than bad.	3.07	Moderately Agree
9. AI is worth studying.	3.50	Agree
10. Most jobs in the future will require knowledge related to AI.	3.44	Agree
Overall Mean	3.21	Moderately Agree

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Moderately Agree; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree.

Table 3 shows the students' attitudes towards AI regarding affective components. As observed in the presentation, statement 2 produced the highest mean score, corresponding to an interpretation of "agree." However, statement 4 yields the lowest mean score, corresponding to an interpretation of "moderately agree." In addition, the overall mean was 3.21, which is a descriptive interpretation of "moderately agree" on the scale. The overall mean score specifies a moderate level of agreement among the students regarding the affective component of their attitudes towards AI. This result also proposes that students generally recognize importance and potential benefits of AI. However, their agreement is less potent than in the cognitive component.

Table 4
Student attitudes towards AI in terms of behavioral component

Statement	*Mean*	*Descriptive Interpretation*
1. I want to work in the field of AI.	2.92	Moderately Agree
2. I will choose a job in the field of AI.	2.78	Moderately Agree
3. I would participate in a club related to AI if there were one.	2.84	Moderately Agree
4. I like using objects related to AI.	3.03	Moderately Agree
5. It is fun to learn about AI.	3.40	Agree
6. I want to continue learning about AI.	3.33	Moderately Agree
7. I am interested in AI-related TV programs or online videos.	3.13	Moderately Agree
8. I want to make something that makes human life more convenient through AI.	3.25	Moderately Agree
9. I am interested in the development of AI.	3.33	Moderately Agree
10. It is interesting to use AI.	3.46	Agree
11. More class time should be devoted to AI in school.	3.01	Moderately Agree
12. I can handle AI well.	3.09	Moderately Agree
Overall Mean	3.13	Moderately Agree

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Moderately Agree; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree.

Table 4 reveals the students' attitudes toward AI regarding behavioral components. One can tell that statement 10 got the highest mean score of 3.46, which falls under the interpretation of "agree" on the Likert scale. Nevertheless, the statement with the lowest mean belongs to statement 2, with a score of 2.78. This score corresponds to a descriptive interpretation of "moderately agree." On the other hand, the overall mean for the student attitude towards AI regarding behavioral components was 3.13, translating to a descriptive interpretation of "moderately agree" on the Likert scale. These results indicate moderate engagement and interest among students regarding AI-related activities and topics. While there is a general inclination

towards AI, it is essential to note that the agreement is weaker than in the cognitive or affective components. This result suggested the need for further exploration. It targeted initiatives to foster increased enthusiasm and student engagement in AI-related behaviors.

Table 5
Students' AI literacy

Statement	*Mean*	*Descriptive Interpretation*
1. I can operate AI applications in everyday life.	3.08	Moderate
2. I can use AI applications to make my everyday life easier.	3.22	Moderate
3. I can use artificial intelligence meaningfully to achieve my everyday goals.	3.16	Moderate
4. In everyday life, I can interact with AI in a way that makes my tasks easier.	3.21	Moderate
5. In everyday life, I can work together gainfully with artificial intelligence.	3.16	Moderate
6. I can communicate gainfully with artificial intelligence in everyday life.	3.12	Moderate
7. I know the most important concepts of the topic "artificial intelligence."	3.10	Moderate
8. I know the definitions of artificial intelligence.	3.29	Moderate
9. I can assess what the limitations and opportunities of using AI are.	3.33	Moderate
10. I can assess what the advantages and disadvantages of using artificial intelligence entail.	3.44	High
11. I can think of new uses for AI.	3.11	Moderate
12. I can imagine future uses of AI.	3.38	Moderate
13. I can weigh the consequences of using AI for society.	3.38	Moderate
14. I can incorporate ethical considerations when deciding whether to use data provided by an AI.	3.28	Moderate
15. I can analyze AI-based applications for their ethical implications.	3.13	Moderate
16. I can design new AI applications.	2.61	Moderate
17. I can program new applications in the field of "artificial intelligence."	2.63	Moderate
18. I can develop new AI applications.	2.58	Low
19. I can select useful tools (e.g., frameworks and programming languages) to program an AI.	2.75	Moderate
Overall Mean	3.10	Moderate

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Moderately Agree; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree.

Table 5 displays the students' AI literacy level. As observed from the table, most statements got a similar remark of "moderate." Then, the statement "I can assess what advantages and disadvantages the use of an artificial intelligence entails" produced the highest mean of 3.44. This score translates to a descriptive interpretation of "high." However, statement 18 garnered the lowest mean with a score of 2.58, which equates to an explanatory interpretation of "low" on the scale. Finally, the students' artificial intelligence literacy got an overall mean of 3.10, which also falls under the same "moderately" level interpretation. This finding suggests that students possess a moderate understanding and proficiency in various aspects of AI, such as operating AI applications, understanding AI concepts, assessing limitations and opportunities, evaluating ethical considerations, imagining future uses, and analyzing ethical implications. However, their abilities to design and develop new AI applications are relatively lower.

Table 6 embodies the level of students' AI self-efficacy mean distribution. Generally, one can establish that all of the statements generated a "moderate" response from the respondents. In particular, statement 1 produced the highest mean with a score of 3.11, which corresponds to a descriptive interpretation of "moderate." On the other hand, statements 4 and 5 generated the lowest mean score of 3.04, which also falls under the descriptive interpretation of "moderately." Finally, the student's overall AI self-efficacy is 3.06,

Table 6
Students' level of AI self-efficacy

Statement	*Mean*	*Descriptive Interpretation*
1. I can rely on my skills in difficult situations when using AI.	3.11	Moderate
2. I can handle most problems with artificial intelligence well on my own.	3.05	Moderate
3. I can also solve strenuous and complicated tasks well with artificial intelligence.	3.10	Moderate
4. I can keep up with the latest innovations in AI applications.	3.04	Moderate
5. Despite the rapid changes in artificial intelligence, I can always keep current.	3.04	Moderate
6. Although there are often new AI applications, I remain "up-to-date."	3.06	Moderate
Overall Mean	3.06	Moderate

Legend: 1.00-1.79=Strongly Disagree; 1.80-2.59=Disagree; 2.60-3.39=Moderately Agree; 3.40-4.19=Agree; 4.20-5.00=Strongly Agree.

with a similar descriptive understanding of the "moderate" level. These results indicate that students possess a reasonable belief in their competence to effectively utilize AI technologies and adapt to changes in the field. However, it is worth considering that self-efficacy levels can vary among individuals, and additional support and resources may enhance their confidence and proficiency in using AI.

Table 7
Differences in the student's perspective on artificial intelligence when grouped according to available gadgets at home

Variables	*Available Gadgets at Home*	*N*	*Mean*	*SD*	*t-test*	*p*
Student attitude towards AI	Laptop/PC.	467	3.29	0.724	1.408	.160
	Smartphone/IPAD	241	3.21	0.682		
AI literacy	Laptop/PC.	467	3.14	0.748	1.975*	.049
	Smartphone/IPAD	241	3.03	0.696		
AI self - efficacy	Laptop/PC.	467	3.11	0.807	2.416*	.016
	Smartphone/IPAD	241	2.97	0.726		

Note. df= 706; *$p < .05$

The result of *t*he independent t-test showed significant differences in the students' perspectives on AI when grouped according to the available gadgets at home. From the table presentation, one can determine that there were interesting findings in terms of AI literacy and AI self-efficacy. The study obtained $t(706)=1.975$, $p=.049$ for AI literacy. The result revealed that those with laptops/PCs have a higher mean score (M=3.14; SD= 0.748) than those with smartphones/iPads (M=3.03; SD=0.696). In addition, AI self-efficacy also generated $t(706)=2.416$, $p=.016$. The result also revealed that respondents with laptops/PCs have a higher mean score (M=3.11; SD=0.807) than those with smartphones/iPads (M=2.97; SD=0.726). Both probability values were lower than the alpha significance level of .05. Therefore, it is safe to conclude that there existed a significant variation in the AI and AI self-efficacy among students when grouped according to the availability of gadgets at home.

On the other hand, regarding the student attitude toward AI, the study obtained $t(706)= 1.408$, $p=.160$. The *p*-value was insufficient to generate substantial evidence to prove the difference. Thus, it is safe to assume that there was no significant difference in the students' attitudes toward AI when grouped according to the available gadgets at home.

In Table 8, the result of the independent *t*-test for the student's perspective on AI when grouped according to the use of any form of AI in learning. As one can decipher, there was substantial proof that variations existed in students' attitudes toward AI, AI literacy, and AI self-efficacy. The study's calculation resulted to $t(706)= 1.965$, $p=.050$ for student attitude on AI; $t(706)= 2.351$, $p=.019$ for AI literacy; and $t(706)= 2.799$, $p=.005$ for AI self-efficacy. The obtained probability values were all significant at a .05 alpha significance level. Therefore, it is safe to assume significant differences exist in the student attitude toward AI, AI literacy, and AI self-efficacy. Hence, the study rejects the null hypothesis.

Table 8
Differences in the student's perspective on artificial intelligence when grouped according to the use of any form of AI in learning

Variables	*Use of Any form of AI in Learning*	*N*	*Mean*	*SD*	*t-test*	*p*
Student attitude on AI	Yes	546	3.29	0.698	1.965*	.050
	No	162	3.17	0.745		
AI literacy	Yes	546	3.13	0.726	2.351*	.019
	No	162	2.99	0.742		
AI self - efficacy	Yes	546	3.11	0.770	2.799*	.005
	No	162	2.91	0.808		

Note. df= 706; *$p < .05$

Presented in Table 9 is the result of the Analysis of Variance for the student's perspective on AI when grouped according to their college/ department.

Table 9
Differences in the student's perspective on AI when grouped according to college/ department

Variables		*SS*	*df*	*MS*	*F-value*	*p*
Student attitude on AI	Between Groups	5.271	4	1.318	2.637*	.033
	Within Groups	351.228	703	0.500		
	Total	356.498	707			
AI literacy	Between Groups	4.911	4	1.228	2.309	.057
	Within Groups	373.891	703	0.532		
	Total	378.802	707			
AI self – efficacy	Between Groups	3.754	4	0.938	1.536	.190
	Within Groups	429.510	703	0.611		
	Total	433.264	707			

*Note. *$p < .05$*

It is interesting to note that the students' attitude toward AI yielded a significant result. The study obtained $F(4, 703)= 2.637$, $p=.033$, wherein the associated probability value is significant at a .05 alpha level of significance. There was a significant difference in the students' attitudes toward AI when grouped according to college/ department. However, in the case of AI literacy and AI self-efficacy, there was no substantial evidence to imply significant variations in the calculations. The table showed the following results: $F(4, 703)= 2.309$, $p=.057$ for AI literacy, and $F(4, 703)= 1.536$, $p=.190$ for AI self-efficacy. Both of the probability values were higher than the .05 alpha significance level. Therefore, it is safe to assume that there were no significant differences between the two variables when grouped according to their college/ department.

Table 10 results for the Analysis of Variance for the student's perspective on AI when grouped according to year level.

Table 10
Differences in the student's perspective on AI when grouped according to year level

Variables		*SS*	*df*	*MS*	*F-value*	*p*
Student attitude on AI	Between Groups	4.785	3	1.595	3.192*	.023
	Within Groups	351.714	704	0.500		
	Total	356.498	707			
AI literacy	Between Groups	3.259	3	1.086	2.036	.107
	Within Groups	375.544	704	0.533		
	Total	378.802	707			
AI self - efficacy	Between Groups	1.809	3	0.603	0.984	.400
	Within Groups	431.455	704	0.613		
	Total	433.264	707			

*Note. *$p < .05$*

We noted that the student attitude toward AI got a significant result. The study obtained $F(3, 704)= 3.192$, $p= .023$, wherein the associated probability value was significant at a .05 alpha level of significance. Thus, it is safe to conclude that there is a significant difference in the student attitude toward AI when grouped according to their year level. However, in the case of AI literacy, there was no substantial proof to prove the difference and that of AI self-efficacy. The study also obtained $F(3, 704)= 2.036$, $p= .107$ for AI literacy and

$F(3, 704)= 0.984$, $p= .400$ for AI self-efficiacy. Both of the probability values obtained were greater than the alphas significance level of .05. Therefore, it is safe to assume that there was no significant difference in the AI literacy and AI self-efficacy when grouped according to respondents' year level.

Table 11
Differences in the student's perspective on AI when grouped according to age

Variables		*SS*	*df*	*MS*	*F-value*	*p*
Student attitude on AI	Between Groups	3.453	3	1.151	2.295	.077
	Within Groups	353.046	704	0.501		
	Total	356.498	307			
AI literacy	Between Groups	2.752	3	0.917	1.718	.162
	Within Groups	376.050	704	0.534		
	Total	378.802	707			
AI self - efficacy	Between Groups	1.976	3	0.659	1.075	.359
	Within Groups	431.288	704	0.613		
	Total	433.264	707			

*Note. *p > .05*

Table 11 shows the Analysis of Variance result for the student's perspective on AI when grouped according to the respondents' age. In general, there was no significant variation in the three major variables involved in the study. To be more specific, the study obtained the following results: $F(3, 704)= 2.295$, $p=.077$ for the student attitude toward AI; $F(3, 704)= 1.718$, $p=.162$ for the AI literacy; and $F(3, 704)= 1.075$, $p=.359$ for the AI self-efficacy. All of the *p*-values were not significant at a .05 alpha significance level. Thus, there were no significant differences in the student attitude toward AI, AI literacy, and AI self-efficacy when grouped according to the respondents' age.

Table 12
Differences in the student's perspective on AI when grouped according to gender

Variables		*SS*	*df*	*MS*	*F-value*	*p*
Student attitude on AI	Between Groups	3.101	2	1.551	3.093*	.046
	Within Groups	353.397	705	0.501		
	Total	356.498	707			
AI literacy	Between Groups	4.341	2	2.170	4.086*	.017
	Within Groups	374.462	705	0.531		
	Total	378.802	707			
AI self - efficacy	Between Groups	10.717	2	5.358	8.940*	.000
	Within Groups	422.547	705	0.599		
	Total	433.264	707			

*Note. *p < .05*

In Table 12, the study performed an Analysis of Variance for the student's perspective on AI when grouped according to gender. In general, we can see variations in the student's perspectives when we grouped them according to their gender. Specifically, the study generated the following results: $F(2, 705)= 3.093$, $p=.046$ for the student attitude on AI; $F(2, 705)= 4.086$, $p=.017$ for AI literacy; and $F(2, 705)= 8.940$, $p=.000$ for AI self-efficacy. The associated *p*-value garnered by the three variables was lower than the alpha significance level of .05. Thus, we can safely assume that there were significant differences in the students' perspectives towards AI when grouped according to their gender.

For the study to determine if there is any underlying association between the student attitude toward AI, literacy toward AI, and self-efficacy toward AI, Table 13 presented the result of the Pearson-*r* computation.

Table 13
Correlation matrix between student attitude on AI, AI literacy, and AI self-efficacy

Variables	*1*	*2*	*3*	*4*
1) Student attitude on AI	1			
2) AI literacy	.656*	.132*	1	
	.000	.000		
3) AI self-efficacy	.628*	.136*	.764*	1
	.000	.000	.000	

Note. $*p < .05$

As can be seen from the Table 13, there was a moderate positive correlation between the student attitude toward AI with AI literacy and AI self-efficacy. The study produced the following results: r=.656, p=.000 for AI literacy and r=.628, p=.000. Both associated p-values were significant at a .05 alpha significance level. Thus, it is safe to assume that there is a moderate association between the three variables of the study.

Table 14
Linear regression to predict the students' attitude on AI

Model	*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
	B	*Std. Error*	*Beta*		
(Constant)	1.021	.110		9.256	.000
AI Literacy	.407	.041	.419	9.865	.000
AI Self-Efficacy	.273	.039	.301	7.078	.000

Note. $F(3, 704)=209.333$, $p= .000$; $R^2= .471$; $p< .05$

The proponents performed a linear regression analysis to analyze if AI literacy and self-efficacy predict the student's attitude toward AI. Based on Table 14, AI literacy (B=.407) and AI self-efficacy (B=.273) were significant predictors of student attitudes toward AI. The obtained unstandardized B coefficients have associated probability values of .000 each, which is significant at a .05 alpha significance level. Therefore, both AI literacy and AI self-efficacy were significant predictors of student attitudes toward AI.

4. Discussion

AI is becoming a part of our daily lives. In the educational field, although students are unaware of it, they are already using AI in their learning process. The primary purpose of this study is to determine the predictor of student attitudes toward AI. The study employed a modified instrument to meet the study objectives. After the statistical analysis, the data generated some interesting findings.

Regarding the students' attitude toward AI, two out of the three components elicited a moderate score from the students. For the cognitive component, most students agreed with the context of AI and how it can help them in learning and their classroom studies. As for the affective construct, the students gave moderately agreed remarks since they probably have yet to accept the reality of integrating AI into their daily lives. For the behavioral aspect, the students also gave a moderately agreed response, showing that they need more time to accept and use AI in their daily activities. In a related study by Yüzbaşıoğlu (2020), the researcher mentioned that less than half of the study's respondents had a basic knowledge of AI technologies. However, in a recent paper by Obenza et al. (2024), they found that college students' attitudes toward AI were high compared to the result of the study.

As for the level of AI literacy, the students also gave this variable a moderate response because AI is still something new to them, and they still need to be aware of its usefulness and application. In the previous paper of Cardon et al. (2023), they implored that students need to develop AI literacy to succeed in their workplace in the future. In a different study, AI literacy is not a predictor of AI readiness among students (Dai et al., 2020).

The students also have moderate AI self-efficacy regarding relying too much on AI. They still believe they can do most things in school without depending too much on AI. This result contradicts the recent findings of Obenza et al. (2024), wherein college students have a high level of AI self-efficacy. Nevertheless, Lee and colleagues in 2022 mentioned that AI-based chatbots could help improve students' self-efficacy.

The study also professed some exciting insights for the inferential aspect of the study. First, for the student attitude toward AI, there were significant differences in the use of any form of AI in learning,

college/ department, year level, and gender. As for AI literacy, we observed differences in the case of available gadgets at home, the use of any form of AI in learning, and gender. Lastly, for AI self-efficacy, we observed differences in available gadgets at home, the use of any form of AI in learning, and gender. In the study of Dai et al. (2020), male students reported higher confidence, relevance, and readiness for A.I. Asirit and Hua (2023) also pointed out that familiarity with AI depends on age, academic year, and field of study, where the current study also coincides with some of the mentioned demographic entities.

Furthermore, in terms of association, student attitude toward AI has a moderate positive correlation with AI literacy and AI self-efficacy. Linear regression analysis also confirmed that both AI literacy and AI self-efficacy are significant predictors of student attitudes toward AI. Obenza et al.'s article (2024) showed that AI self-efficacy correlates with student attitudes toward AI among college students.

5. Conclusion

Based on the results and discussions, the study reached some conclusions. First, regarding student attitudes towards AI, the respondents gave an "agree" remark for the cognitive aspect and "moderately agree" for the affective and behavioral aspects. Second, regarding the level of AI literacy, the students have a moderate level of response. Third, the students also gave this section moderate AI self-efficacy. Fourth, significant differences were found in all three variables in the study. The study found differences in the students' attitudes towards AI when we grouped the students according to the use of any form of AI in learning, college/ department, year level, and gender. In the case of AI literacy, we found significant differences when we grouped students according to the availability of gadgets at home, the use of any form of AI in learning, and gender. For AI self-efficacy, we found differences when we grouped students according to the availability of gadgets at home, the use of any form of AI in learning, and gender. Finally, the study also found a significant association between student attitudes towards AI, AI literacy, and AI self-efficacy. Linear regression analysis confirmed the association, and both AI literacy and AI self-efficacy were significant predictors of student attitudes toward AI.

6. Implications of the Study

Based on the results and conclusions of the study, the proponents shared several implications for the study. First, student awareness of AI. The study indicated some exciting insights into how the students perceive AI as part of their learning life. More importantly, students should reflect on increasing their acceptance and openness to this rapidly advancing technology. Second, career and skill development. The use and application of AI is endless since it slowly shapes an individual's overall worth and capacity. The study also increasing application and growing importance of AI in the job market for its unlimited application and use. Third, educational adaptation. Educational institutions can integrate AI into their lessons, making them more exciting and motivating for students. AI can also assist in training and skills development for students, faculty, and personnel. Finally, policy and school governance. The study's findings can be a source of policy and decision-making for the institution. They can be used for policy development that promotes responsible use of AI, addresses ethical issues and concerns, and provides equitable access to AI for education and opportunities.

7. Limitation of the Study

It is essential to realize that this study is just like any other study with certain limitations. Some of the limitations that the study encountered and can become a basis for future research development include the following. For the population sample, it would be better not to limit it to college students of one institution but also include other colleges or institutions within and outside the city. Additionally, future studies can also be done on senior and junior high school students. Finally, the study can also use other research designs, such as qualitative and mixed-method designs, to validate this paper's findings, or future studies can perform structural equation modelling (SEM). Other variables influencing or predicting students' attitudes towards AI utilization in learning can be explored.

Author contribution: All the authors were involved in concept, design, collection of data, interpretation, writing, and critically revising the article. Authors approve final version of the article.

Declaration of interest: The authors have no conflict of interest to declare regarding the content of this article.

Ethics declaration: The authors stated the study did not require formal ethical approval. However, they observed and adhered to the ethical practices applicable to scientific research. The participants were college

students and the survey was anonymous; informed consent was obtained prior to data gathering and strict observation of confidentiality was employed. No harm or coercion was done to those who wish to not participate to the survey.

Funding: No funding source is reported for this study.

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