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The Use of Artificial Intelligence for Academic Purposes Among Students in Public Higher Education Institutions in Negeri Sembilan

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Abstract

Artificial intelligence (AI) is transformative technology that enables machines to emulate human capabilities such as learning and problem solving. In today's digital era, AI plays a crucial role in reshaping sectors in terms of education, services and business. The research is to examine the level of Artificial Intelligence (AI) practices among IPTA students at Negeri Sembilan. The research employs a quantitative approach with cross-sectional design, utilizing convenient sampling that involves 151 respondents. The study employs descriptive analysis and reliability analysis. The findings of the study indicate that the level of artificial intelligence (AI) practices among IPTA students in Negeri Sembilan is at notably high level, as evidenced by a mean value of 4.11 and an excellent level of reliability at a significant value of 0.935. These results demonstrate that level artificial intelligence (AI) practices among IPTA students have been widely adopted as supportive learning tools. Consequently, AI practices can enhance their learning activities in higher education by supporting students' cognitive processes and educational experiences.

INTRODUCTION

Artificial Intelligence (AI) has evolved from a theoretical concept into a transformative technology shaping contemporary society. The term Artificial Intelligence was first introduced by John McCarthy at the Dartmouth Conference in 1956, while earlier foundational work by Alan Turing, particularly the Turing Test proposed in 1950, established a framework for evaluating machine intelligence through human-like behaviour (Computer History Museum, 2024). Today, AI refers to technologies that enable machines and computer systems to replicate human cognitive functions such as learning, reasoning, decision-making, and problem-solving (Russell & Norvig, 2020). In the era of Industry 4.0, AI has become a key driver of innovation across multiple sectors, including education, where it plays an increasingly important role in enhancing learning processes and skills development (UNESCO, 2021).

In Malaysia, AI has been positioned as a strategic component of national development through the National Artificial Intelligence Roadmap 2021–2025, which emphasises the creation of a digitally competent workforce to

support the country's digital economy. Public Higher Education Institutions (IPTA) are central to this agenda, as they are responsible for preparing graduates to meet the demands of a technology-intensive labour market. At the state level, Negeri Sembilan has experienced steady population growth, leading to increased demand for educational infrastructure and the expansion of higher education institutions. The establishment of additional IPTA campuses namely UiTM Seremban 3 and UiTM Rembau, alongside the earlier UiTM Kuala Pilah campus reflects the state's commitment to widening access to tertiary education and strengthening human capital development.

Within this expanding higher education environment, AI-based applications such as ChatGPT, Copilot, Gemini, and similar platforms have become increasingly popular among university students. These tools are commonly used for information retrieval, idea generation, and academic task completion. However, the rapid adoption of AI has raised concerns regarding uneven usage patterns, ethical considerations, and potential over-reliance on technology. Excessive or uncritical use of AI may undermine students' cognitive development, critical thinking abilities, and genuine mastery of academic content, leading to a mismatch between coursework performance and actual competence. Conversely, when used responsibly, AI holds significant potential as a learning support tool that can enhance understanding, efficiency, and academic engagement.

Despite growing interest in AI integration in higher education, empirical research examining AI practices among IPTA students in Malaysia, particularly in Negeri Sembilan, remains limited. Existing studies have highlighted digital literacy, curriculum integration, and critical thinking as important factors influencing effective technology adoption, yet their specific relationship with students' AI practices has not been systematically examined within the local context. Therefore, this study aims to assess the level of AI practices among IPTA students in Negeri Sembilan and to analyse the relationships between digital literacy, curriculum integration, critical thinking, and AI practices. Additionally, the study seeks to identify the most dominant factor influencing students' engagement with AI, thereby contributing empirical evidence to inform educational policy and promote ethical and meaningful AI usage in higher education.

LITERATURE REVIEW

Artificial Intelligence Practices

The use of Artificial Intelligence (AI) among students in higher education has increased rapidly. This adoption has improved students' academic performance, individualized learning processes, and facilitated access to smart tools that aid in research and problem solving (Zhang and Wong, 2024). In relation to this, Vieriv and Petrea (2025) argue that the integration of AI supports higher-quality academics and can guide more active and enthusiastic interactions between students and teachers. Furthermore, Bayly-Castaneda et al. (2024) emphasize that individualized learning paths powered by AI can increase student engagement and ensure that they are always motivated. In the Malaysian context, the findings of a study by Mustafa and Bahador (2025) found that perceived utility, ease of use, and technological readiness have a significant impact on how AI is used. However, actual use is still limited if there is no support from institutions. Similarly, a study by Mat Yusoff et al. (2025) revealed that utility, legitimacy, and quality of materials are important factors that influence how students use AI tools. This proves that both technological and contextual aspects will influence how people use AI tools.

METHODOLOGY

The study was conducted at Public Higher Education Institutions (IPTA) in Negeri Sembilan, namely UiTM Seremban, Universiti Sains Islam Malaysia (USIM), and Politeknik Port Dickson. The population of this study consists of IPTA students in Negeri Sembilan. According to the Ministry of Higher Education Malaysia (2022), the total number of students enrolled in Public Higher Education Institutions in Negeri Sembilan is 32,738. The sample size was determined based on the rule of thumb suggested by Roscoe (1975), which indicates that a sample size greater than 30 and less than 500 is appropriate for most research. This study employed quantitative methods as the primary approach to data collection. After obtaining permission from the university management, the researcher visited the selected institutions and distributed the questionnaires directly to students.

To ensure the effectiveness and clarity of the instrument, a pilot test involving 30 students was conducted prior to the main data collection. After one month, a total of 151 completed questionnaires were collected. The results of the reliability and normality tests for all constructs are presented in Table 1. An instrument is considered acceptable when the Cronbach's Alpha value exceeds 0.6 (Sekaran & Bougie, 2013). Furthermore, data are

regarded as normally distributed if the skewness values fall within the range of -3 to +3 and the kurtosis values between -10 and +10 (Kline, 2005). As shown in Table 1, the findings confirmed that the study met the criteria for both reliability and normality. The data were then analyzed using Pearson correlation and multiple regression analysis.

TABLE 1:
MEASUREMENT OF VARIABLES, NORMALITY TEST, AND RELIABILITY TEST RESULTS

Variables	Items	Skewness	Kurtosis	Cronbach's Alpha
Artificial Intelligence Practices	1. I use AI tools regularly in my academic work. 2. I use AI tools more often now compared to previous semesters. 3. I often rely on AI tools to assist me in completing assignments or tasks. 4. I use AI tools to help generate ideas or brainstorm for assignments. 5. I use AI tools to summarize readings or understand difficult topics. 6. I use AI tools to check grammar, paraphrase, or improve sentence structures. 7. I am confident in using AI tools without assistance. 8. I can decide which AI tools are suitable for different academic tasks. 9. I know how to modify AI-generated content to suit my own writing style. 10. I feel in control when using AI tools in my academic work.	-0.998	2.040	0.935

RESULT AND DISCUSSION

Profile of Respondents

A total of 151 IPTA students in Negeri Sembilan were involved in this study. The majority were Female (n=87, 57.6%) and the rest were Male (n=64, 42.4%). Meanwhile, in terms of age, the most people are 21-23 years old (n= 70, 46.4%), followed by 18-20 years old (n= 50, 33.1%) and 24 years and above (n= 31, 20.5%). For the education level, most students were from the bachelor's degree level (n=78, 51.7%), while (n=52, 3.44%) were at the diploma level and (n=21, 13.9) at the master's level. Then, the respondents consisted of UiTM Seremban students (n=62, 41.1%), University Sains Islam Malaysia (USIM), (n= 30, 33.1%) and Politeknik Port Dickson (n=39, 25.8%). A total of (n=80, 53.0%) used AI daily, (n=66, 43.7%) on a weekly basis and (n=5, 3.3%) on a monthly basis. Most students learn AI independently (n= 137, 90.7%) and the rest through institutions, peers, or courses. Last but not least, the most widely used type of AI is ChatGPT (n=146, 96.7%), followed by Copilot (n=3, 2.0%) and Nova (n=2, 1.3%).

TABLE 2:
PROFILE OF RESPONDENTS (N151)

Profiles		Frequency (n)	Percentage (%)
Gender	Male	64	42.4
	Female	87	57.6
Age	18-20 years old	50	33.1
	21-23 years old	70	46.4
	24 years old and above	31	20.5
Level of education	Diploma	52	34.4
	Bachelor's Degree	78	51.7
	Master's Degree	21	13.9
University	UiTM Seremban 3	62	41.1
	Universiti Sains Islam Malaysia (USIM)	50	33.1
	Politeknik Port Dickson	39	25.8
Frequency of using AI tools	Daily	80	53.0
	Weekly	66	43.7
	Monthly	5	3.3
Access to technology	Self-study	137	90.7
	Educational institution	7	4.6
	Friends	5	3.3
	Courses	2	1.3
Types of AI tools used	ChatGPT	146	96.7
	Nova	2	1.3
	Copilot	3	2.0

TABLE 3:
REALIBILITY TEST

Variable	Number of Items	Cronbach's Alpha	Reliability Assumes
Artificial Intelligence (AI) practices among IPTA students in Negeri Sembilan	10	0.935	Excellent

Cronbach's alpha is commonly utilized to assess dependability in order to ascertain the accuracy, consistency and stability of items. It is considered to be measured of scale reliability. According to Julie Pallant, (2020) values between 0 to 1, with values greater than 0.7 indicates that the measurable scale has acceptable internal consistency and reliability. In addition, according to the NurHafizah Ahmad at al. (2024), the range of coefficient of Cronbach's alpha less than 0.60 indicate poor internal consistency, 0.60 until 0.69 is reflect questionable internal consistency, 0.70 until 0.79 is acceptable, 0.80 until 0.89 is good and more than 0.90 is excellent. As shown in table 4.2 above, the Cronbach's alpha coefficient for artificial intelligence (AI) practices among IPTA students in Negeri Sembilan in this research is calculated to be 0.935. The values obtained in this research are indicative of good reliability, acceptability and excellent.

TABLE 4:
LEVEL OF MEAN SCORE RANGE

Mean Score Range	Level
1.00 – 2.50	Low
2.51 – 3.50	Medium
3.51 – 5.00	High

TABLE 5:
MEAN AND STANDARD DEVIATION

Variable	Mean	Standard Deviation	N
Artificial Intelligence (AI) practices among IPTA students in Negeri Sembilan	4.11	0.75	151

In this study, the questionnaire was designed using the Likert Scale for each statement, and respondents were required to provide their responses to the questions. Then, the Likert Scale allows respondents to express their degree of agreement or disapproval with a statement or question on a positive to negative scale by offering five possible responses. Therefore, each statement in the study was created using a Likert scale with a score 1 to 5, and the respondents were given a choice for each one as indicated as follows: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The calculated average mean score for artificial intelligence (AI) practices among IPTA students in Negeri Sembilan is 4.11. The standard deviation is 0.75363. The mean value falls within range of 3.51 to 5.00, indicating a high level of artificial intelligence (AI) practices among IPTA students in Negeri Sembilan. This suggests that IPTA students in Negeri Sembilan have a high level of practice in their learning education.

CONCLUSION

The study is to examine the artificial intelligence (AI) practice among public higher institution (IPTA) students in Negeri Sembilan. Based on the findings, it shows that artificial intelligence (AI) is increasingly integrated into students' learning activities and it also as a tool that can be used to support academic tasks such as searching for information, ideas, and enhancing knowledge. In addition, the results show that AI is a influential component of the contemporary higher education learning environment. Furthermore, the contribution of the study from the empirical point of view of this study has provided the latest data on level Artificial intelligence (AI) practices among IPTA students in Malaysia especially in Negeri Sembilan. Practicality, the findings have provided valuable insights for universities and educators in developing learning strategies that align with rapid technological advancements. Using AI as a responsible and effective way in teaching and learning can make a student become more adaptive and well prepared for digital-based education. In terms of implications, higher educational institutions should know and learn AI practice in their learning because it can help the student's quick access to information. Other than that, the institutions must provide clear academic guidelines and ethical frameworks to avoid students rely to AI too much in their academic tasks without their original writing and it to maintain academic integrity. Besides that, lecturers also play an important role whereby guiding students to use AI as a supportive learning tool rather than as replacement for independent thinking. Therefore, it can help students be more effective to use AI. However, this study has shortcomings. Where, the scope of the study and the sample size are only focused on students of Public Higher Education Institutions (IPTA) in Negeri Sembilan only, not all IPTAs in Malaysia. Therefore, another study is recommended by involving more students from various higher education institutions such as IPTA and IPTS in various states.

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