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Artificial Intelligence (AI) Practices Among Private Higher Education Institutions (IPTS) Students in Negeri Sembilan

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Abstract

Artificial Intelligence (AI) has become an integral component of contemporary life, extending beyond technological innovation to support learning, problem-solving, language processing, and decision-making through data-driven pattern recognition and adaptation. Despite its growing importance, the extent of AI practices among students in private higher education institutions (IPTS) in Negeri Sembilan remains underexplored. This study aims to examine the level of AI practices among IPTS students in Negeri Sembilan. A quantitative research design was employed, involving 154 student representatives selected through non-probability convenience sampling. Data was collected using structured questionnaires and analyzed using inferential statistical techniques. The findings indicate that access to technology, institutional support, and the availability of AI tools significantly influence AI practices among students. The regression model explains 38.9% of the variance in AI practices, with the availability of AI tools emerging as the most significant contributing factor. These results highlight the critical role of providing adequate AI tools in fostering effective and meaningful AI practices in higher education. The study underscores the need for higher education institutions to prioritize AI tool availability alongside supportive institutional frameworks to enhance students' learning experiences, collaboration, and practical application of AI technologies.

INTRODUCTION

Artificial Intelligence (AI) has experienced rapid growth in recent years and is increasingly integrated across various sectors, including healthcare, business, transportation, and education. This advancement has significantly transformed modern societies, particularly in the areas of knowledge creation, information sharing, and learning. AI refers to the simulation of human intelligence by machines, especially computer systems, enabling them to perform tasks such as learning, reasoning, problem-solving, and decision-making (Encyclopedia Britannica, 2021). Through algorithms and large-scale data processing, AI systems continuously improve their performance, allowing them to replicate complex human cognitive functions. Today, AI applications such as chatbots, voice assistants, recommendation systems, and generative tools have become embedded in daily life and educational environments.

In higher education, AI has demonstrated strong potential to enhance learning efficiency, personalise educational experiences, and support academic task management. AI-driven educational tools can promote self-directed learning, critical thinking, and lifelong skill development when used appropriately (Bates et al., 2020). However, effective AI integration depends not only on technological availability but also on students' readiness, digital literacy, and ethical awareness. Without proper guidance and institutional frameworks, AI adoption may lead to overreliance, academic misconduct, and reduced originality in student work, highlighting the need for responsible and well-regulated usage.

In Malaysia, higher education institutions (IPT) have begun adopting AI technologies in virtual learning platforms, academic analytics, and AI-assisted teaching and assessment. Studies indicate that AI-based applications support language learning and academic writing among students and educators (Zuraina, 2020; Razali & Mahamod, 2025). Tools such as ChatGPT and QuillBot are increasingly used by students for idea generation, grammar checking, and information retrieval. However, recent reports have raised concerns regarding academic integrity, revealing that a significant proportion of student submissions contain AI-generated content, reflecting gaps in ethical awareness, institutional policy enforcement, and formal AI training (The Sun Daily, 2024; HEPI, 2025). These challenges are particularly evident within private higher education institutions (IPTS), where AI policies and support structures remain inconsistent.

Therefore, this study titled *"A Study on Factors Contributing Towards Artificial Intelligence (AI) Practices Among Private Higher Education Institutions (IPTS) Students in Negeri Sembilan"* aims to address this gap by examining key factors influencing AI practices among IPTS students. The study focuses on access to technology, institutional support, and the availability of AI tools as determinants of AI practices. By concentrating on students in Negeri Sembilan, this research seeks to provide empirical evidence to support institutional decision-making, policy development, and educational planning. Ultimately, the study aims to ensure that AI adoption enhances academic integrity, strengthens digital competencies, and prepares students for an AI-driven educational and professional future.

LITERATURE REVIEW

Artificial Intelligence Practices

The integration of Artificial Intelligence (AI) into education has increasingly been recognized as a critical driver of transformation in teaching and learning processes. Technological advancement, particularly in AI and robotics, is expected to expand educational opportunities while addressing emerging instructional challenges more effectively (Ahmad et al., 2021). Prior studies highlight that AI literacy plays a crucial role in shaping students' willingness to engage with AI technologies, as it enhances self-efficacy, reduces anxiety toward AI-driven systems, and fosters openness to innovation (Chai et al., 2021). Furthermore, AI-powered systems embedded in educational technologies enable adaptive and personalized learning experiences by analyzing real-time student data and aligning instructional pathways with individual learning needs, thereby improving learning outcomes and reducing learner frustration (Artificial Intelligence in Education: A Review, 2020; Vinkóczi et al., 2023). Empirical evidence also suggests that students' acceptance of AI is strongly influenced by their perceived usefulness of AI applications, particularly in providing personalized feedback, interactive support, and timely responses, which enhance engagement and learning efficiency in higher education contexts (Hsu et al., 2020; Kelly, 2023). Consequently, the increasing adoption of AI and machine learning in higher education institutions demonstrates significant potential to support e-learning, strengthens students' readiness to utilize advanced technologies, and promote sustained academic development (Kuleto et al., 2021).

METHODOLOGY

This study adopted a quantitative, cross-sectional research design to examine students' Artificial Intelligence (AI) practices in learning. Data were collected at a single point in time to provide a snapshot of AI usage among diploma and degree students in selected private higher education institutions (IPTS) in Negeri Sembilan, which is appropriate for identifying naturally occurring relationships within a specific population (Creswell, 2012). The unit of analysis for this study was individual students enrolled in IPTS, as their experiences, perceptions, and usage patterns of AI are central to understanding the factors influencing AI practices in higher education contexts.

Based on Higher Education Statistics (2023), the target population comprised 15,373 IPTS students in Negeri Sembilan. Although Krejcie and Morgan's (1970) sample size table recommends a minimum of 375 respondents for this population size, the study obtained 154 valid responses, which is considered adequate for quantitative

behavioural research, as sample sizes between 30 and 500 are acceptable for statistical analysis (Roscoe, 1975). A non-probability convenience sampling technique was employed due to accessibility and time constraints, enabling efficient data collection within available resources. Data were collected using a structured, self-administered questionnaire titled *"The Factors Contribute Towards Artificial Intelligence (AI) Practices Among Private Higher Education Students in Negeri Sembilan,"* developed in a bilingual format (English–Malay) to enhance clarity and comprehension. The use of a structured instrument facilitated systematic measurement of variables and supported objective statistical analysis, contributing to the reliability and validity of the study.

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

Variables	Items	Skewness	Kurtosis	Cronbach's Alpha
Artificial Intelligence Practices	1. I regularly use AI-powered applications (eg. ChatGPT, Quillbot, Gemini, Siri) in my learning. 2. I understand how to use AI tools effectively for my academic work. 3. I integrate AI tools into my assignments of projects. 4. I am confident in experimenting with different AI platforms. 5. I believe AI helps me manage my time better. 6. I use AI tools to find information or generate ideas. 7. I use AI responsibly, avoiding plagiarism or over reliance. 8. I frequently explore new AI features or updates. 9. AI tools are part of my regular learning routine.	-1.573	4.210	0.914

RESULT AND DISCUSSION

Profile of Respondents

Out of a total of 154 respondents, the majority were female (n = 87, 56.5%), while male respondents accounted for 67 participants (43.5%). In terms of age distribution, most respondents were within the 21–23 years age group (n = 66, 42.9%), followed by those aged 24–26 years (n = 43, 27.9%), 18–20 years (n = 25, 16.2%), and 27 years and above (n = 20, 13.0%). Regarding educational qualification, the majority of respondents were pursuing or had obtained a bachelor's degree (n = 100, 64.9%), while the remaining respondents held a diploma qualification (n = 53, 34.4%). With respect to institutional representation, the highest proportion of respondents were from UCSI University, Kampus Bandar Springhill (n = 41, 26.6%), indicating a notable participation from this institution. In terms of artificial intelligence tools used, ChatGPT emerged as the most commonly utilised platform among respondents (n = 76, 49.4%), suggesting its dominant role in supporting academic-related activities among IPTS students in Negeri Sembilan.

TABLE 2:
PROFILE OF RESPONDENTS (N=154)

Profiles		Frequency (n)	Percentage (%)
Gender	Male	67	43.5
	Female	87	56.5
Age Group	18-20 years old	25	16.2
	21-23 years old	66	42.9
	24-26 years old	43	27.9
	27 and above	20	13.0
Academic Qualifications	Diploma	53	34.4
	Degree	100	64.9
University	Nilai University	38	24.7
	University UCSI Kampus Bandar Springhill	41	26.6
	Kolej MSU Seremban	32	20.8
	Open University Malaysia (OUM)	39	25.3
	Others	4	2.6
Types of AI tools Used	ChatGPT	76	49.4
	Quill Bot	16	10.4
	Gemini	51	33.1
	Siri	8	5.2
	Others	3	1.9

TABLE 3:
RELIABILITY TEST

Variable	Number of Items	Cronbach's Alpha	Reliability Assumes
Artificial Intelligence (AI) Practices among IPTS students in Negeri Sembilan	10	0.914	Excellent

Cronbach's alpha is widely employed to assess the reliability of a measurement scale, determining the accuracy, consistency, and stability of the items. It is regarded as a key indicator of scale reliability. According to Pallant (2020), Cronbach's alpha values range from 0 to 1, with values above 0.70 indicating acceptable internal consistency and reliability. Similarly, NurHafizah Ahmad et al. (2024) classify the coefficient values as follows: below 0.60 indicates poor internal consistency; 0.60–0.69 reflects questionable consistency; 0.70–0.79 is acceptable; 0.80–0.89 is good; and values above 0.90 are considered excellent. In this study, the Cronbach's alpha coefficient for Artificial Intelligence (AI) practices among IPTA students in Negeri Sembilan was calculated as 0.914. This result demonstrates excellent internal consistency, indicating that the instrument used is highly reliable and suitable for measuring AI practices among the respondents.

Mean and Standard Deviation

The analysis of mean scores and standard deviations provides insights into the overall level of AI practices among IPTA students in Negeri Sembilan. A five-point Likert scale was employed (1 = Strongly Disagree, 2 = Disagree, 3 = Moderate, 4 = Agree, 5 = Strongly Agree) to assess respondents' engagement with and application of AI tools in their academic activities. These items collectively represented the construct of AI practices within the study. The overall mean score for AI practices was 4.294 (SD = 0.601, *n* = 154), indicating a high level of engagement among respondents in adopting AI technologies for learning and academic tasks. The relatively low standard deviation suggests that responses were closely clustered around the mean, reflecting a high degree of consensus in AI usage practices among the students.

From an analytical perspective, these findings indicate that students are generally well-acquainted with AI tools and are actively incorporating them into their academic routines. However, high engagement with AI does not necessarily imply optimal or responsible usage. Previous research (e.g., Cheng et al., 2020; Chuah et al., 2023) has identified gaps between familiarity with technological tools and effective utilization, where students may rely on AI in limited or superficial ways due to convenience, lack of digital literacy, or insufficient guidance.

Therefore, while the current findings demonstrate strong adoption of AI practices, they also highlight the need for structured interventions—such as training programs, digital literacy workshops, and institutional support—to ensure that students not only engage with AI but do so effectively and ethically. The high mean score provides a strong foundation for policymakers and educators to design targeted strategies that enhance both the competency and responsible application of AI among higher education students.

TABLE 4
LEVEL OF MEAN SCORE RANGE

Mean Score Range	Level
1.0 – 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 IPTS students in Negeri Sembilan	4.294	0.601	154

In this study, the questionnaire was designed using the Linkert Scale for each statement, and respondents were required to provide their responses to the questions. Then, the Linkert Scale allows respondents to express their degree of agreement or disapproval with statements or questions 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 follow: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The calculated average mean score for artificial intelligence (AI) practices among IPTS students in Negeri Sembilan is 4.294. The standard deviation is 0.601. The mean value falls within range 3.51 to 5.00, indicating a high level of artificial intelligence (AI) practices among IPTA students in Negeri Sembilan. This suggests that IPTS students in Negeri Sembilan have a high level of practices in their learning education.

CONCLUSION

This study examined the factors influencing artificial intelligence (AI) practices among private higher education students in Negeri Sembilan, focusing on access to technology, institutional support, and the availability of AI tools in learning. The findings demonstrate that access to technology, institutional support, and the availability of AI tools in learning significantly contribute to students' AI practices, highlighting the importance of both technological and organisational readiness in fostering effective AI adoption within higher education institutions. Among the examined factors, the availability of AI tools in the learning environment emerged as the most influential determinant of AI practices. This indicates that students are more likely to actively engage with AI when AI-based applications are readily accessible and systematically integrated into teaching and learning activities. The result underscores the critical role of practical exposure and hands-on interaction with AI tools in enhancing students' confidence and willingness to incorporate AI into their academic tasks. This study contributes to the growing body of literature on AI adoption in higher education by providing empirical evidence from the Malaysian context, particularly within private higher education institutions. The findings offer meaningful insights for institutional leaders and policymakers, suggesting that investments in AI infrastructure, coupled with institutional support mechanisms, are essential for promoting sustainable and effective AI practices among students. Nevertheless, several limitations should be acknowledged. The study was limited to 154 respondents from selected institutions in Negeri Sembilan, which may constrain the generalisability of the findings to other regions or institutional settings. Future research is therefore encouraged to involve larger sample sizes and a wider range of higher education institutions to enhance the robustness and external validity of the results. Additionally, the reliance on self-administered questionnaires may introduce response bias, as participants' perceptions may not fully capture their actual AI usage behaviours. To address this limitation, future studies may adopt a mixed-method approach by incorporating qualitative techniques such as interviews or focus group discussions to obtain deeper and more nuanced insights into students' experiences with AI. Finally, future research could extend the current framework by examining potential mediating or moderating variables, including digital literacy, attitudes toward AI, or perceived usefulness. Incorporating these variables may provide a more comprehensive understanding of how technological and institutional factors influence AI practices, thereby offering stronger theoretical contributions and more actionable implications for higher education institutions seeking to enhance AI integration.

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