Assessing Instructors' Confidence and Challenges in Integrating AI in their Practices

Parmjit Singh[1*] [ID], Syahreena Mohd Shahrom[2] [ID]
and Nur Shakila Izzati Rusli[3] [ID]

[1,2,3] Faculty of Education, Universiti Teknologi MARA, Selangor, Malaysia
parmj378@uitm.edu.my

Abstract. The successful integration of AI in education hinges on the preparedness of instructors to navigate and leverage these advanced technologies into their practices. How prepared are instructors to effectively implement AI into their practices? This study investigates instructors' confidence and challenges in integrating AI tools into their practices. Utilizing a mixed-method approach, the study employed both questionnaires and interviews for data collection. In the first phase, 260 instructors from public universities in Klang Valley, Malaysia, participated, followed by interviews with five respondents. The quantitative analyses reveal that approximately three-fifths of the respondents have yet to join the bandwagon of AI. It depicted that just 30.0% of respondents regularly use AI, with a moderate confidence level of 6.42 (SD=2.01) among instructors towards the usage of AI. In the second phase, findings suggest that multiple factors, including training and experience, perceptions of AI, integration challenges, ethical considerations, and institutional support, influence the confidence levels of instructors in integrating AI tools into their practices. Addressing these challenges requires extensive training programmes, more detailed guidelines, and strong support networks. Instructors must acquire technical and pedagogical knowledge to integrate AI effectively, understanding its functionalities and limitations to avoid negatively impacting student learning. Embracing AI is crucial for educators to remain relevant in the evolving educational landscape.
Keywords: AI, ChatGPT, Teaching and Learning.

1 Back Ground

As we are about to leave 2024 and enter 2025, the education landscape is undergoing a revolutionary transformation driven by advancements in Artificial Intelligence (AI). From the days of pencil and paper to the current era of digital learning, there has been a drastic evolution in how we approach teaching and learning. Among these innovations, ChatGPT, an advanced language model developed by OpenAI, initiated the ball rolling and gained significant attention in late Nov 2022 for its potential to revolutionize teaching and learning processes [1][2] These emerging AI trends in education are already revolutionising today's education and opening the door to unprecedented possibilities and opportunities, especially in the context of Higher Education Institutions (HEIs). We strongly believe that the Integration of AI into education is not a passing trend; it will be the foundation of the learning environment

and tomorrow. Have AI-related skills been fully exploited in the curriculum of higher education Institutions?

AI has transformed education by improving the features of existing tools and paving the way for new solutions. The initial usage of AI such as ChatGPT was predominantly used for answering questions and assisting in completing assignments [3] including writing essays and scientific papers [4][5]. It also boosts enthusiasm and activity levels, which could lead to better learning outcomes [6]. These AI tools are evolving at such a high pace that are opening doors to unprecedented possibilities and opportunities in educational environments. There is no denying that AI has the potential to transform the educational landscape by improving learning experiences, assisting instructors, and providing more personalised learning opportunities for students. As a result, there is a global need for formal curricula on AI at Higher Education Institutions. Has the AI-related functionality been fully exploited in the curriculum of higher education Institutions?

How prepared are instructors to effectively implement AI into their practices? The findings from the literature produce mixed results. In a study by Alshorman [7] among 136 Science teachers in Jordan, he found a high level of self-reported readiness and confidence in their AI capabilities in integrating it into classroom practices. In another study, 87% of the participants showed high levels of AI readiness, which further suggests that Egyptian faculty members in higher education are reasonably prepared for AI. However, the study by Alnasib [8] among 465 higher education instructors at King Faisal University in Saudi Arabia displayed quite the opposite results. He found the faculty members have a moderately low-level readiness to integrate AI into their teaching practices. Many of these studies utilised purely a quantitative approach via the administration of a questionnaire to gain feedback from the respondents. This mix of results justifies this current study to be undertaken to assess instructors' current AI literacy.

This study aims to examine instructor's confidence and challenges in integrating these AI tools into their practices. The research questions for this study are:
a) What is the level of instructor's confidence in integrating AI tools into their practices?
b) What are the challenges faced by instructors in integrating AI into their practices?

2   Methodology

2.1 Design. This two-phase study employed a mixed-method approach to assess AI literacy among instructors in higher education institutions. In the first phase, a descriptive design, using a questionnaire, was used to provide a general description of Instructor's AI literacy in the context of their practices. In the second phase, semi-structured interviews were conducted with selected respondents.

2.2 Population, samples and sampling. The population of the study comprised instructors from three universities in the Klang-Valley area in Malaysia. In the first phase, the researchers determined the sample size by applying Krejcie and Morgan's [9] table. Based on the recommended 95% confidence level with a 5% margin of

error, the sample size requirement was approximately 290. However, in this study, 260 samples were involved, due to some unavoidable circumstances of last-minute pull-out, using a simple random sampling technique. In the second phase of the study, five respondents were selected based on purposive sampling. The sampling criteria were based on their proficiency in using technology to ensure insightful responses on the integration of AI-related skills and potential into their practices.

2.3 Instrumentation. In the first phase, a questionnaire was adapted from the work of Nguyen [10], Baidoo-Anu, et al., [11] and Kamoun [12]. The final version of the questionnaire comprised 17 items with each targeting specific domains namely Demography, familiarity with ChatGPT (5 items), Confidence Towards the Usage of ChatGPT (6 items) and Attitudes toward change regarding the use of ChatGPT (6 items). This was part of a bigger study and for this paper, thus the selected variables involved were familiarity and confidence. The content validity of the questionnaire was established by a panel of three experts from a public university. Then, a pilot test was performed to determine the reliability (Cronbach Alpha) of the items which yielded a coefficient of 0.942.

For the second phase, interviews were conducted using the standard protocols. The questions posed during the interviews focused on assessing instructors' AI literacy in the context of understanding, evaluation, and use of artificial intelligence (AI) in their teaching and research activities. Throughout the interview sessions, audio data was recorded using an audio recorder.

3   Findings of Study

This section details the findings of this two-phase study for the data collected via questionnaires and interviews.

3.1 Demographic Profile of Respondents
A total of 260 respondents were involved in the first phase of the study with a composition of 95 male respondents (36.5%) and 165 female respondents (63.5%). The majority of these respondents were in the teaching experience category between 1 to 5 years of age (27.3%), followed by 25.0% (65) between 6 to 10 years, and 35.8% (12.7% and 18.1%) were 11 years and more. In terms of technology proficiency, more than half depicted themselves as moderately proficient (62.3%) compared to 32.3% (84) and 5.4% (14) as advanced and Novice, respectively.

3.2 Instructor's Familiarity, Usage and Confidence Towards the Usage of AI
The first question was related to the respondent's familiarity with ChatGPT as an AI language learning model.
Research Question 1: *To what extent are respondents' familiar with ChatGPT as an AI-based language learning model?*
The data in Table 1 shows that 40.3% of the respondents are very familiar with ChatGPT as compared to 59.7% as moderate, somewhat and not at all familiar with

ChatGPT. This data was aligned when asked how frequently they used this AI for their work (refer to Table 2).

Table 1. Familiarity with ChatGPT

Familiarity with ChatGPT	Frequency	Percent
Not at all familiar	14	5.4
Somewhat familiar	44	16.9
Moderately familiar	97	37.3
Very familiar	95	36.5
Extremely familiar	10	3.8
Total	260	100.0

The data shows that at least 30.0% (n=78) of the respondents frequently use ChatGPT in their practices, as compared to 70% (n=182) who do not.

Table 2. Usage of AI such as ChatGPT in respondent's practices

Frequency of Usage	Frequency	Percent
Very frequent	12	4.6
Frequently	66	25.4
Occasionally	111	42.7
Rarely	46	17.7
Never use	25	9.6
Total	260	100.0

This section focuses on assessing instructors' confidence in their ability to use AI (e.g. ChatGPT) in their Teaching and Learning practices.

Research Questions: What is the level of instructor's confidence towards the usage of AI (e.g. ChatGPT)?

The data in Table 3 shows that all the items depict a moderate score of confidence ranging from 6.19 (self-assurance in troubleshooting issues) to 6.72 (utilisation of AI such as ChatGPT). The overall score of 6.42 (SD=2.01) shows that respondents involved in this study are not adequately confident in using AI (e.g. ChatGPT) in their Teaching and Learning practices. The standard deviation of 2.01 shows a significant variability in the opinion among the respondents involved in the study.

Table 3. Confidence Towards the Usage of AI (e.g. ChatGPT)

Confidence Towards the Usage of AI (e.g. ChatGPT)	N	Mean	SD
I feel confident in my ability to effectively use AI (e.g. ChatGPT) as a teaching aid.	260	6.20	2.35
I am comfortable troubleshooting and addressing issues that may arise when using AI (e.g. ChatGPT).	260	6.19	2.27
I believe I can adapt and modify AI (e.g. ChatGPT) to suit different teaching contexts and subjects.	260	6.59	2.15
I believe I can adapt and modify AI (e.g. ChatGPT) to suit different teaching contexts and subjects.	260	6.32	2.27
I have confidence in my ability to integrate AI (e.g. ChatGPT) seamlessly into my instructional practices.	260	6.48	2.30

I am confident in my knowledge of the limitations and potential risks associated with AI (e.g. ChatGPT).	260	6.72	2.23
Overall	260	6.42	2.01

Scale 1 to 10

3.3 Qualitative Findings

This analysis provides a more holistic picture our understanding of instructors' confidence levels and challenges in integrating artificial intelligence into their practices. The demographic information of the instructors involved are as follow.

Table 4. Demography of Respondents

Pseudonym	Gender	Faculty/Dept.	Experience	Qualification	Technology Proficiency
P	Male	Education	33 Years	PhD	Novice
M	Female	Social Sciences	15 Years	PhD	Intermediate
J	Male	Art and Humanities	24 Years	PhD	Novice
A	Female	Business	4 Years	PhD	Intermediate
L	Female	Social Sciences	10 Years	PhD	Novice

3.3.1 Summary of Instructor Interviews on AI Integration in Education

In a series of interviews with instructors across different academic background and fields, their perspectives on integrating ChatGPT into educational settings reveal a spectrum of attitudes, from cautious optimism to outright scepticism. The main goal was to understand participants' views, familiarity, thoughts, and confidence in adopting AI tools in their practices. Researchers identified five thematic categories, their cross-validated codes and supporting excerpts from the interviews, as shown in Table 5.

Table 5. Thematics, Categorised Codes and Excerpts from Transcripts

Themes	Categorized Codes	Excerpts from Transcripts
Perception and Attitude Towards AI	Scepticism towards AI efficacy, AI is seen as academic aid, Preference for traditional methods	"*I believe it can make students lazy, as they might rely too much on AI instead of developing their own skills and critical thinking.*" - J. "*It should be used as a supplementary tool, not a replacement for critical thinking.*" -M"*I have been using AI for my research and publication...*"... "*I strongly believe it is the future of teaching and learning*" – P
Integration Challenges	Lack of curriculum integration, Unclear benefits in teaching, Specific strategies needed	*I am not sure how to integrate it in my instructions.*" … "*To have effective implementation, we need to be equip with the knowledge*". - A "*But to integrate these AI in my teaching ..... My understanding of ChatGPT's knowledge is quite basic.*" – M "*I am not using it in my teaching yet because I need to have the skills to effectively use it.*" - P

Ethical and Academic Integrity	Academic integrity issues, Concerns about student reliance, Impact on assessment validity	*"Students are using it in their assignments since last semester but not able to detect. Yes, we have Turnitin software, yet students are able to bypass it." - A* *"I believe it raises serious ethical issues. The use of ChatGPT can encourage academic dishonesty and affect students' assessment integrity." – M* *"It's hard to ensure that students are not over-relying on AI." – L* *"I believe it raises serious ethical issues. The use of ChatGPT can encourage academic dishonesty." - P*
Institutional Support	Lack of university initiatives, Need for policy guidelines, Support and resources deficit	*Our university hasn't provided any guidelines or support for integrating AI into our curriculum." - M* *"If it (AI) is that important, why has the university not done anything about it?" - A* *"If the university wants us to integrate it (AI), then there should be policy in our curriculum" L* *"....the administrators should prioritise AI to be included in the curriculum, once it is included then ALL instructors will have no choice to upgrade themselves to use it effectively" - P*
Training and Experience	Limited AI training, Need for hands-on workshops, Novice in technology	*"Till date, I have not attended any workshop or training of AI." - A* *"I have not had any opportunities to attend any workshop." – J* *"We all definitely need comprehensive training to use it gain the confidence needed to effectively use ChatGPT in my courses". - M* *"The university should offer more workshops and resources." - P*

4   Discussion of Findings

The following section discusses findings based on the quantitative analysis followed by the qualitative analysis.

4.1 Familiarity, Usage and Confidence with AI tools such as ChatGPT

The findings from the quantitative analyses reveal that 59.7% of the respondents were moderately, somewhat or not familiar at all with AI tools such as ChatGPT. This shows that approximately three-fifths of the respondents have yet to join the bandwagon of AI. These results are reinforced by the usage patterns in Table 4, which show that just 30.0% of respondents regularly use AI such as ChatGPT in their practices while a sizable 70.0% do not. Similarly, the findings from Table 5 depict a moderate confidence level (6.42, SD=2.01) among instructors towards of usage of AI. These findings are in contrast with the existing research which showed that in today's evolving education landscape, the integration of artificial intelligence (AI) and education is more than a future possibility; it is imminent. Its integration is changing the way students learn, teachers teach, and institutions' learning environments [11] [1]. We strongly believe that the respondents' prior exposure to AI tools, their technological competence, and the availability of resources or training within their institutions could all be contributing factors to this discrepancy in familiarity, usage and confi-

dence [13] [14]. This finding serves as a valuable tool in assessing the level of awareness and knowledge instructors possess about AI in the ever-transforming education landscape.

4.2 Qualitative Analysis

The following section details the findings and the discussion based on the five themes generated that impact instructors' levels of confidence and perceived views in utilising AI tools, such as ChatGPT, in their practices

4.2.1 Perception and Attitude Towards AI

The respondents involved in the interviews displayed a wide array of perspectives and views about artificial intelligence. A displayed a mixed degree of optimism, acknowledging the potential advantages of artificial intelligence (AI) and expressing concerns regarding its integration into her practice. Contrarily, P exhibited tremendous enthusiasm, asserting that AI has the potential to improve the effectiveness of teaching further. Three respondents (J, M, and A) have developed a negative mistrust of artificial intelligence due to its black-box nature. AI is sometimes called a "black-box" because of its complexity and opaque decision-making mechanisms, making it challenging for educators to comprehend and interpret [15]. It is simply related to the inability of educators to understand and interpret how the process of developing answers works using AI tools such as ChatGPT. The array of attitudes observed fits in with previous research indicating that educators' perceptions of AI can have a substantial influence on their readiness to embrace these technologies [16].

4.2.2 Integration Challenges

One important theme that emerged was the difficulty of incorporating AI into the curriculum. Major obstacles mentioned by all the respondents (A, P, L, M) were the lack of organised training and assistance. Currently, the choice of integrating AI depends on the individual instructors, given that it has not been formalised in the curriculum. This to a large extent contributed to instructors struggling to know where, when, and how to utilize it. This is consistent with research showing that access to the right tools, along with proper training and support, are essential for a successful technology integration process [17]. These issues further exacerbated by the institution's lack of support and a clear implementation plan, which makes it challenging for teachers to successfully integrate AI into their lessons.

4.2.3 Ethical and Academic Integrity

Probably, the biggest challenge brought upon by AI in academic settings concerns ethical issues and academic integrity, which were found to be important themes influencing teachers' confidence. All the respondents (e.g. A, P, M, L, and J) expressed concern about students exploiting AI tools for coursework and assignments, which raises potential issues to be pondered. The ethical debate for years has revolved mostly around plagiarism, cheating, and academic integrity. Unfortunately, issues of concern have started to be more rampant and connected with artificial intelligence tools as a student are using these tools to cheat or plagiarise their written assignments and exams [18][19]. Amidst this, a great number of institutions worldwide are reviewing their regulations regarding AI usage, claiming apprehensions regarding academic

integrity and ethical issues [20][21]. Some Australian institutions have had to modify their test and evaluation methods back to pen- and paper-based [22][23]. Thus, more guidelines and policies of AI usage should be enforced and educators be educated on these issues of great concern.

4.2.4 Institutional Support

Another key theme generated from the analyses was the importance of institutional support and resources. Respondents emphasised the lack of top-down instructions and institutional guidelines on AI integration. The majority of the respondents (M, A, L, P,) noted that the faculty had made no mention of AI usage, indicating a lack of institutional emphasis on AI. This is consistent with the results of studies stressing the need for administrative support in creating an environment favourable to technology acceptance [17]. If the institution is serious about implementing AI in its curriculum, the directive should come from the top with clear policies and guidelines. They should redesign policies to accommodate AI integration. According to Nguyen [10], universities in the UK are taking initiatives to establish regulations and policies addressing the usage of AI. This is especially in the context to assist "shape institution and course-level work to support the ethical and responsible use of generative AI, new technology and software like ChatGPT".

4.2.5 Training and Experience

Another key theme generated from the interviews in AI integration is to provide effective training for instructors. The categorised codes generated were: Limited tech exposure, Need for training, and Novice in technology. Respondent A emphasised the importance of training and workshops by expert practitioners for understanding AI's benefits in education. Similarly, M also stated the importance of professional development training to ensure successful AI integration. The lack of training and development programmes significantly undermines instructors' confidence, as evidenced by existing literature that suggests professional development is critical for successfully integrating technology into education [24]. This theme of training and experience was crucial to instructors' capacity to employ technology in their teaching successfully. Similarly, Chai [25] and Hubers et al. [26] underline the importance of the pedagogical relevance of technology, noting that instructors need to understand how technology may enhance their teaching and increase student learning results. As the analysis unfolds, it is clear that training educators in AI is critical for adapting to the changing landscape of education.

5   Conclusion

This two-phase study comprising both quantitative and qualitative approaches shows a mixed level of familiarity and moderate confidence among 260 instructors from higher education institutions in using AI for personal use but not in their teaching practices. The thematic analysis highlights several interconnected themes generated that influence instructors' confidence and willingness to integrate AI tools in their teaching. Addressing these factors through targeted professional development, robust institutional support, and clear ethical guidelines can enhance the effective adoption of AI in higher education. AI integration in classroom practices in the current educa-

tion landscape is inevitable in the present generation of pro-digital technology students. To the question posed in the introductory section of this paper: Has the AI-related functionality been fully exploited in the curriculum of higher education Institutions? Do the instructors have the confidence to effectively use and implement AI in their practices? Based on the findings of this study, the answer is no for both.

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