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ACCEPTANCE TOWARDS A.I. USE AMONG KPTM BANGI STUDENTS IN AN ESL CLASSROOM

Mohd Hafeez Bin Zainol

Kolej Poly-Tech MARA, Bandar Baru Bangi, Malaysia, hafeez@gapps.kptm.edu.my

ABSTRACT

This research investigated the factors that influence students' acceptance towards the use of AI technology in an ESL classroom, using the Unified Theory of Acceptance and Use of Technology (UTAUT) model as its framework. The study was conducted with a sample of students from Kolej Poly-Tech MARA (KPTM), Bangi campus, who have been exposed to AI technology daily. The research specifically examined the impact of five constructs on students' acceptance of AI technology, as informed by the UTAUT model, which includes use experience, performance expectancy, effort expectancy, social influence, and facilitating conditions. The data was collected through a Google Form questionnaire and analysed using descriptive statistics and correlation analysis. The findings of this study are expected to provide insights into how educators can effectively implement AI technology in ESL classrooms and improve students' ESL learning outcomes.

1.0 INTRODUCTION

English as a Second Language (ESL) learning has become increasingly important in today's globalised world, especially in countries where the demand for English proficiency has risen for communication, education, and employment opportunities. According to Smith and Eckroth (2017), the use of Artificial Intelligence (AI) in various fields, including education, has increased. As noted by D'Mello and Graesser (2012) and Hwang and Tu (2021), AI can potentially improve the learning process in ESL classrooms. Numerous studies have explored this topic and have shown promising results. However, it has to be added that the successful implementation of AI technology depends on students' acceptance and attitudes toward the technology, so caution must also be taken.

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a widely accepted framework used in technology adoption studies to explain and predict users' acceptance and adoption of technology in various contexts

(Khechine, Lakhal, & Ndjambou, 2016). According to Keerthiwansha (2018), the integration of artificial intelligence (AI) technology in English as a second language (ESL) classrooms has recently become increasingly prevalent. With this latest development in mind, the UTAUT framework, specifically designed to measure technology acceptance, is the best model to identify the factors influencing students' acceptance of AI technology in ESL classrooms.

The UTAUT model proposes four key factors influencing users' acceptance and usage of technology: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh, Morris, & Davis, 2003). These factors can explain, with acceptable per cent of confidence, the factor of adoption and usage of technology in different settings. Therefore, applying the UTAUT framework to ESL classrooms can help the researcher understand students' attitudes towards AI technology and determine the factors that affect their acceptance and usage. Therefore, this research applied the UTAUT framework to investigate the acceptance of AI technology in ESL classrooms and identify the factors influencing students' willingness to use it in their language learning process.

Like many other educational institutions, Kolej Poly-Tech MARA (KPTM) Bangi faces a challenge incorporating the latest technology in its teaching and learning processes. Despite technological advancements, KPTM Bangi uses traditional methods such as chalkboards and textbooks. In contrast, only the latest computer technology is the Learning Management System software or LMS. While these methods may have been effective in the past, they are becoming outdated and inadequate for modern-day students who have been normalised to use the latest technologies available in the market (Prensky, 2001). Furthermore, using Artificial Intelligence (AI) in the classroom can revolutionise how students learn, enhancing student engagement and interactivity. By incorporating AI, personalised learning experiences can be provided, which can improve the quality of education. Therefore, KPTM Bangi needs to upgrade its teaching and learning process with the latest technology to provide the best possible education to its students.

2.0 LITERATURE REVIEW

2.1 Artificial Intelligence and Its Applications in Education

Artificial Intelligence (AI) can revolutionise education by providing new and innovative ways to facilitate teaching and learning. AI technologies, such as machine learning, natural language processing (NLP), and computer vision, can be utilised in a variety of applications in education, including design of curricula, methods of teaching, and modes of assessment, to make the learning experience more effective (Eltabakh, 2019). These technologies are believed to be able to help personalise the learning experience for individual students. Maghsudi, Lan, Xu, and Van Der Schaar (2021) noted that it can be achieved through autonomous network formation because it encourages learners to shift. AI can also automate a teacher's administrative tasks, such as grading, assessment, and feedback, freeing up more time for them to better focus on delivering high-quality instruction and incidentally spend more time on each student (Sharma, Tomar, Bhardwaj, & Sakalle, 2021). With the increasing amount of data available in education, AI can also be used for predictive analytics, helping educators identify at-risk students and provide targeted interventions (Latif, Alghazo, Pilotti, & Brahim, 2021; Adnan, Habib, Ashraf, Mussadiq, Raza, Abid, & Khan, 2021). Overall, the potential applications of AI technology in education are vast, and its integration has the potential to transform the way students learn, and educators teach.

2.2 Technology Acceptance Models

The Unified Theory of Acceptance and Use of Technology (UTAUT), the Technology Acceptance Model (TAM), and the Diffusion of Innovations Theory (DOI) are the three popular technology acceptance models that have been used to understand users' attitudes and behaviours towards the adoption technology (Taherdoost, 2018; Radhakrishnan, & Chattopadhyay, 2020). UTAUT proposed that four key factors influence technology acceptance: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). On the other hand, TAM focused on two key factors, perceived ease of use and perceived usefulness, as predictors of user behaviour (Davis, 1987). On the other hand, DOI emphasised the role of communication channels and social networks in adopting and diffusing new technologies (Rogers, 2003). While these models differ in their focus and approach, they all recognise the importance of user attitudes, beliefs, and perceptions towards technology as critical factors in determining their acceptance and usage. Understanding these models and their applications

can help researchers identify the factors that influence the acceptance and use of AI technology in education, such as in the context of an ESL classroom.
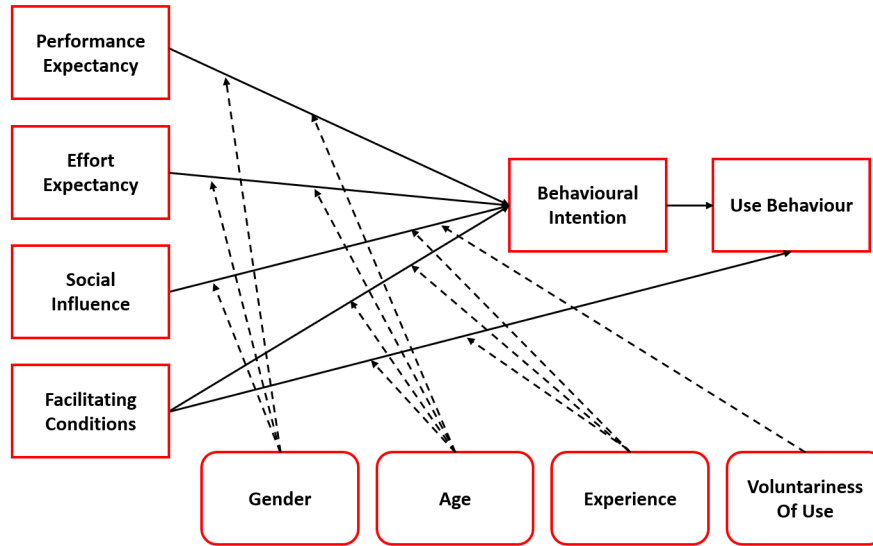

Figure 1: UTAUT Model

2.3 ESL Learning and Teaching

ESL learning and teaching practices have evolved significantly over the years, shifting towards communicative and task-based approaches that prioritise the development of practical language skills (Sanchez, 2004; Rahman, 2010). The traditional grammar-translation method has been largely replaced by more student-centred methods, such as the communicative language teaching approach, which focuses on meaningful communication and interaction between learners (Phung, 2010; Du, 2021). The use of technology in ESL teaching and learning has also become increasingly prevalent, with the availability of online resources, digital textbooks, and language learning applications (O'Brien & Hegelheimer, 2007). However, challenges remain in ensuring equitable access to technology, especially for students from disadvantaged backgrounds (Oyedemi & Mogano, 2018). The COVID-19 pandemic has also accelerated the adoption of online and blended learning models, with many ESL classrooms moving online (Dhawan, 2020; Maphosa, 2021). While these developments offer new opportunities for ESL learning and teaching, they also present challenges in ensuring quality and maintaining student engagement in the virtual classroom (Hu & Li, 2017).

2.4 Attitudes and Perceptions of Students Towards Technology

Students' attitudes and perceptions towards technology play a crucial role in determining their acceptance and usage of technology in the classroom (Botero, Questier, Cincinnato, He, & Zhu, 2018). While some students are enthusiastic about using technology and see it as a valuable tool for learning, others may be more hesitant or even resistant to its use (Ugur, 2020). Factors influencing students' attitudes towards technology include their prior experience and exposure to technology, their level of digital literacy, and their personal beliefs and values (Metallo & Agrifoglio, 2015; Mou, Shin, & Cohen, 2017). Students' perceptions of technology can also be influenced by their peers and social networks, as well as by the quality of the technology itself and the support provided by their teachers (Zacharis, 2015). Understanding students' attitudes and perceptions towards technology is important for educators, as it can help them design technology-enhanced learning experiences that are engaging, effective, and inclusive for all learners.

2.5 Challenges and Benefits of Using AI in ESL Classrooms

The potential benefits of using AI in an ESL classroom, evidenced by previous studies, are numerous and certainly cannot be ignored. According to Xie, Chu, Hwang, and Wang (2019), AI technologies can provide personalised learning experiences that are tailored to individual students' needs and preferences, allowing for more effective and efficient learning. Vinay (2023) further added that AI-powered tutoring systems can also provide immediate feedback to students, thus helping them identify areas where they need to improve and guiding them on how to do so. AI can also help teachers track student progress and identify areas where additional support may be needed (Devi, Sreedhar, Arulprakash, Kazi, & Radhakrishnan, 2022). Alam (2021) further added that AI could also help to automate teachers' administrative tasks such as grading, saving their time and allowing them to focus on delivering high-quality instruction.

However, it has to be acknowledged that several challenges exist associated with using AI in an ESL classroom. One major challenge, as highlighted by Oyedemi et al. (2018) is ensuring that the technology is accessible and equitable for all students, especially for those from disadvantaged backgrounds who may not have access to the necessary devices or even an internet connection. Another challenge, as noted by Chu, Nyrup, Leslie, Shi, Bianchi, Lyn, and Grenier (2022), and Fosch-Villaronga, Drukarch, Khanna, Verhoef, and Custers (2022), is the potential for AI to reinforce biases or stereotypes, particularly in language processing and translation applications. Additionally, there are concerns about privacy and data security, as AI technologies often collect and analyse large amounts of potentially sensitive data (Carmody, Shringarpure, & Van de Venter, 2021). To an extent, this concern can also be expanded towards both the teachers and the students. Therefore, educators must carefully consider these potential challenges and address them to ensure that AI is used ethically and effectively in the ESL classroom.

2.6 Pedagogical Implications of Using AI Technology in ESL Classrooms

The impact of using AI on the pedagogy of the ESL classroom is significant, as it can transform traditional teaching practices and enhance student learning outcomes. For example, Chounta, Bardone, Raudsep, and Pedaste (2022) have indicated that AI providing personalised and adaptive learning experiences can help teachers deliver more effective instruction and tailor their teaching to individual student needs. Additionally, Kim, Cha, and Kim (2019) have noted that AI-powered tools like chatbots can provide immediate feedback to students, thus helping them identify areas where they need to improve and allowing for far more efficient learning. Carayannopoulos (2018) has also stated that employing chatbots in the classroom can benefit students by being convenient and easy and creating a greater connection with their instructor. Aside from chatbots as an extension of AI technology, Kumar, Sakthivel, Prabhavathy, Rani, Subhashini, and Rekha (2023) have also noted that other ways in which AI technology can be employed to enrich an ESL classroom is through improving the whole learning experience because the AI will be able to adapt to individual learners' specific requirements and interests. All in all, technology has the potential to revolutionise the pedagogy of the ESL classroom and improve students' learning outcomes.

3.0 METHODOLOGY

3.1 Participants and Procedure

A total of 113 students took part in the study, where the sample characteristics are exhibited in Table 1 below. The students involved came from 5 different study programs offered at KPTM Bangi, and the online questionnaire was completed in August 2023. The link to the survey was shared with them through WhatsApp. The students' participation in the survey was voluntary, and they, too, were initially asked to consent to participation in the survey. The participants were also informed about anonymity issues, whereby an explanation was provided indicating that the data would be utilised only for research aims.

Table 1: Demographic Characteristics of Participants (N = 113)

Program of Studies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	AA001	2	1.8	1.8	1.8
	AA101	27	23.9	23.9	25.7
	AA231	22	19.5	19.5	45.1
	AB101	41	36.3	36.3	81.4
	BS101	21	18.6	18.6	100.0
	Total	113	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	71	62.8	62.8	62.8
	Male	42	37.2	37.2	100.0
	Total	113	100.0	100.0	

3.2 Research Instrument

For this research, an instrument adapted from Almaleki (2020) was employed, which was an adaptation of an instrument developed by Venkatesh et al. (2003) based on the same theory, UTAUT. For her research, four independent variables were identified: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC), and three items were developed and used for each of the four variables. All of these variables are said to have a direct relationship with the Behavioral Intention (BI) variable. The instrument developed and used for the current research employed the same 12 items for the four variables. However, the context changed since, in Almaleki's (2020) case, her research focused on the perception among Saudi international students.

One additional variable was added to this research's instrument, namely Use Experience (UE), to form the fifth variable directly related to BI. The variable UE, first proposed by Venkatesh, Thong, and Xu (2012) as an expansion on the original theory to form UTAUT 2, has been found to have a direct effect on BI, as stated by Xie (2023), and thus was added to the instrument as well. All of the items used in this instrument obtained a very high Cronbach's Alpha coefficient of 0.911 for PE, 0.887 for EE, 0.881 for SI, 0.842 for FC, and 0.902 for UE. All of these scores indicated that the items used in this instrument have an outstanding level of reliability.

3.3 Data Analysis

SPSS version 24.0 was used first to test the instrument's validity and reliability and the items used in the instrument. Then, a simple descriptive analysis, followed by a correlation analysis, was conducted. The Pearson Product-Moment Correlation analysis was chosen to demonstrate the relationship between the five independent variables and the one dependent variable of BI, as proposed in UTAUT. This research, however, did not include demographics in its analysis due to the relatively homogenous nature of the respondents of this research, and the researcher believed that it may not have any significant relationship with all the variables mentioned above.

4.0 FINDINGS AND DISCUSSION

The correlation analysis conducted in this research involved five independent variables, namely, Use Experience (UE), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). The theory used in the research, UTAUT, posited that all of these five variables should have a significant relationship with the dependent variable of Behavioral Intention (BI), which, in effect, should explain the acceptance level of the respondents towards the use of the technology being researched.

Table 2: Correlation Coefficient of Variables

Correlations

		Use Experience	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Behavioral Intention
Use Experience	Pearson Correlation	1	.640**	.686**	.496**	.667**	.607**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	113	113	113	113	113	113
Performance Expectancy	Pearson Correlation	.640**	1	.837**	.580**	.738**	.756**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	113	113	113	113	113	113
Effort Expectancy	Pearson Correlation	.686**	.837**	1	.598**	.815**	.692**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	113	113	113	113	113	113
Social Influence	Pearson Correlation	.496**	.580**	.598**	1	.611**	.600**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	113	113	113	113	113	113
Facilitating Conditions	Pearson Correlation	.667**	.738**	.815**	.611**	1	.758**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	113	113	113	113	113	113
Behavioral Intention	Pearson Correlation	.607**	.756**	.692**	.600**	.758**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	113	113	113	113	113	113

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 2 above, it can be seen that, in general, all of the five independent variables show a positive relationship with the dependent variable BI. Where UE was theorised to have a positive relationship with BI, the analysis shows a coefficient of 0.607, indicating a moderate positive relationship. PE gained a coefficient of 0.756 for its relationship with BI, indicating a strong positive relationship. The relationship between EE and BI gained a coefficient of 0.692, indicating a moderate to strong positive relationship. The variable SI, of all the five variables, gained the lowest coefficient of all, only 0.600, for its relationship with BI – though it is still moderately positive. The last variable, FC, on the other hand, gained the biggest coefficient, 0.758, for its relationship with BI, indicating a strong positive relationship.

Among the factors under the consideration of FC include "*having the resources necessary to use AI*" and "*having the knowledge regarding AI*". Thus, it can be surmised that for KPTM Bangi to enforce the use of AI for their students to learn English, the availability of resources for use and background knowledge regarding the use of AI technology is important to ensure its' successful implementation. The variable of SI, on the other hand, looked at factors such as the perception of other people around them who are either "*important to them*" or "*close to them*" or "*influence their behaviour*" towards the use of AI. This can be understood as simply ensuring that if enough people surrounding these KPTM Bangi students, who matter to them, think highly of using AI, there is a high possibility that the student will also end up using the technology in question.

5.0 CONCLUSION

Overall, from the analysis conducted here, it can be said that all 5 of the identified variables help the researcher identify the level of acceptance of KPTM Bangi students towards the use of AI technologies in an ESL classroom. Of the 5, Facilitating Conditions and Performance Expectancy have shown the strongest relationship with Behavioral Intention – denoting the respondent's intention to use. At the same time, using experience and social influence may only play a minor role in helping the students be receptive to using AI.

Generally, UTAUT as a theory has helped this research better understand the intention to use AI to learn English among KPTM Bangi students – one of the thousands of other researchers that have looked at a similar topic of acceptance towards adopting and using technology. Admittedly, this paper is limited in scope since it only focuses on the perception among students of KPTM Bangi. It could be expanded further to include students from other branches or even other institutions of higher learning in Malaysia.

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