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Perception on the use of Artificial Intelligence (AI) in Teaching in SMK Dato Permaisuri, Miri, Malaysia

Ting Siew Chear, Dr. Muhammad Helmi Norman

Faculty of Education, SMK Dato Permaisuri, Miri, Sarawak, Malaysia

Email:p119819@siswa.ukm.edu.my

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Abstract

This research was conducted to examine the perception on the use of Artificial intelligence tools in teaching practice among SMK Dato Permaisuri's teachers. According to the changing trends in the global education arena, the use of Artificial Intelligence (AI) is increasingly expanding. Aims: This aims to enhance the processes of learning and teaching for greater effectiveness. The utilization of AI in education also creates opportunities to improve the quality of education, make learning more adaptive, and prepare the younger generation to face challenges in the future. In Malaysia, many teachers still face challenges in designing engaging learning experiences. In addition, ineffective teaching strategies that do not support differentiated learning methods contribute to an increased student learning rate. Objective: This study was conducted to examine perceptions of the benefits of use, usability, social influence, and readiness for AI acceptance at SMK Dato Permaisuri. Methodology: This study utilized a descriptive quantitative approach by collecting data through a survey questionnaire. The questionnaire was distributed to 90 teachers at SMK Dato Permaisuri, with only 73 respondents selected as the sample for this study based on the Krejcie and Morgan Table. The data were then analysed using the Statistical Package for Social Science (SPSS) version 15. Results: The study results showed that perceptions of the benefits of use, usability, social influence, and readiness for acceptance indicated a high level of agreement. The highest correlation strength was found between social influence and acceptance readiness with $r=0.66$, $p<0.05$, compared to usability with $r=0.49$, $p<0.05$, and perceived usefulness with $r=0.58$, $p<0.05$. Conclusion: However, overall, it indicates a moderate level of relationship. The multiple linear regression beta coefficient values showed that b (0.58) had the highest contribution to the level of AI acceptance readiness in teaching among teachers at SMK Dato Permaisuri, which is social influence. Conclusion: Overall, the findings of this study suggest that encouragement from superiors and social influence are crucial to encouraging teachers to fully adopt the use of AI in their teaching.

Keywords*:* Artificial Intelligence, Benefits of Use, Usability, Social Influence, Acceptance Readiness

Introduction

Education refers to a specially designed program to develop individuals' potential for academic excellence and to have a diversity of skills comprehensively and interactively, in line with the government's desire to produce a skilled and competitive generation at the global level. Aspects of learning styles and student motivation have become crucial in today's learning environment. Where learning style aspects apply and utilize learning styles such as visual, auditory, and kinaesthetic. Meanwhile, intrinsic and extrinsic motivation became the main motivational factor and element in studies. To achieve the optimum effectiveness of teaching and learning, educators must identify students' learning styles and use appropriate teaching strategies. Appropriate teaching strategies should be aligned with student motivation. Therefore, learning styles designed explicitly with student motivation can enable students to explore their potential and capabilities, stimulating student motivation to enhance academic achievement.

The education of the 21st century demands that all teachers consistently maintain high competence and professionalism in conducting teaching and learning in schools. These efforts are to realize the aspirations of the National Education Philosophy and the Malaysia Education Plan (2013-2025) in creating holistic, progressive, moral, and world-class education towards developing individual potential and producing balanced and harmonious human capital. All students require a more strategic approach, special assistance, support, and teaching plans that align with their needs and potential. As well, teachers need high-level skills and competence to educate and foster students' well-being and independence. Choosing effective teaching strategies is essential to achieving these objectives and ensuring that students are taught and learn well. In the sophisticated digital age, artificial intelligence (AI), which reacts and behaves like human behaviour, has been developed to help students learn (Nawi, 2019). AI helps students grasp concepts, avoid misunderstandings, and improve their interpretations. AI that combines animation, visual, audio, graphics, and colour aspects with easy-to-use usability to represent objects and sounds is a highly suitable tool for all students to utilize in their daily studies. Therefore, this study was conducted to explore the extent of teachers' perceptions regarding the benefits of using AI applications, their views on convenience, the influence of social factors, and how each of these variables collectively contributes to teachers' readiness to embrace the use of AI in both teaching and learning processes.

Furthermore, the researchers have talked about the relationships among instructors' opinions regarding the simplicity of use, the impact of social variables, and their assessments of the advantages of AI applications. By identifying these relationships, the study intends to ascertain the main factors that significantly influence teachers' willingness to accept AI applications in their teaching practices at SMK Dato Permaisuri. This research will allow researchers to understand how these factors impact teachers' readiness to incorporate AI applications in student learning.

Literature Review

Artificial Intelligence (AI) can help facilitate and expedite human work. Based on a study by Salbihana binti Samsudin (2023) in her survey to assess the knowledge of 168 prospective teachers regarding AI in education, it was found that 98 percent of Teacher Training Institute (IPG) students acknowledged the ability of AI to assist teachers in carrying out their tasks correctly, effectively, and ethically. The capabilities of AI exceed those of natural human abilities and can optimize human performance.

AI aids in creating customized educational experiences. Personalized learning systems assess skill mastery, provide students with tailored educational activities, and promote self-paced learning to enhance skill acquisition and self-improvement. Personalized learning involves customizing learning paths to enhance learning effectiveness and meet specific learning objectives (Baker, 2021). The results align with the research by Tapalova and Zhiyenbayeva (2022).

AI allows educators to develop customized educational trajectories to cater to the unique requirements of students. AI may personalize information to meet students' needs, which could boost their interest and involvement in studying. AI applications in augmented reality (AR) education have attracted attention at all levels. AI in AR improves its ability to support teaching and learning by enhancing knowledge and maintaining students' engagement during educational sessions (Ali, 2020). AI integrated into AR creates an interactive experience by altering real-world objects, including digital data, and blending the virtual and physical worlds (Md Yasin et al., 2021). Students can access this learning resource by scanning a smartphone camera, enabling them to learn about the history of virtual things.

Artificial Intelligence (AI) can enhance the learning experience for students. Anna Pertiwi, Yullus Panther Bara, and Yohari Pakiding (2023) have shown that AI effectively enhances the learning experience for students in Educational Technology. Students in the Educational Technology Programme have demonstrated enhanced academic performance and heightened involvement in the learning process due to the implementation of AI. Students can engage with artificial intelligence through absorption.

Athanasios S. Drigas and Rodi-Eleni Ionnidou discussed the application of AI in special education in their review. Technological educational advancements have introduced new ways to interact with kids with special needs. AI apps have been found to influence these students, positively improving their quality of life. Utilizing AI in interventions for students with exceptional needs can aid in diagnosing and choosing more efficient solutions for these students.

The unprecedented shift from traditional teaching to AI teaching has raised concerns about the benefits of use, usability, social influence, and readiness for teachers to accept AI. Understanding teachers' perspectives on these critical aspects is vital for improving AI teaching and ensuring better teaching. Considering the research objectives, this study seeks to enhance the learning and teaching processes for greater effectiveness using AI. As a result, the following three hypotheses will be investigated in this study:

Hypothesis H01: There is no relationship between the perceived benefits of use and the willingness of teachers to accept the use of AI applications in teaching and learning at SMK Dato Permaisuri.

Hypothesis H02: There is no relationship between the perceived ease of use and teachers' willingness to accept the use of AI applications in teaching and learning at SMK Dato

Permaisuri.

Hypothesis H03: There is no relationship between social influence and teachers' willingness to accept the use of AI applications in teaching and learning at SMK Dato Permaisuri.

Research Methodology

This study uses a cross-sectional quantitative approach to investigate the perception of using Artificial intelligence tools in teaching practice among SMK Dato Permaisuri's teachers. It is developed how teachers feel about using AI and creating practice questions for their classes. It comprises six to eight closed-ended questions organized into four primary categories to gauge instructors' impressions after five crucial demographic questions. The age, gender, ethnicity, education level, and work experience of the participants were the five basic demographic questions. These were followed by four dimensions: social influence, usability, preparedness for adoption of AI education, and benefits of use. Every chosen dimension is grouped with its own set of closed-ended questions; for example, six items are attributed to usability, six to advantages of usage, six to social influence, and eight to acceptance readiness. The questionnaire is explicitly laid out for participants and contains clearly defined closed-ended items in a variety of formats. For all substances, this questionnaire has a five-point Likert-type scale that goes from strongly disagree (1) to agree (5) strongly. Surveys using closed-ended questions typically provide more excellent response rates for the researcher and require less typing from participants, according to Farrell (2016). This suggests that a closed-ended questionnaire lends itself to simple statistical analysis, which is helpful when processing survey data in general. An online questionnaire approach was utilized to recruit 73 respondents for this study. The study participants' agreement is requested so they may freely choose to participate. Research ethics are considered, and students can access and freely fill out the questionnaire anonymously. After teachers are given access to an online questionnaire to complete with their prior agreement, all participants' responses are gathered via an online survey. After initially aiming for ninety teachers, about seventy responses were chosen. The sample quantity satisfies Krejcie and Morgan's requirements. After the questionnaire is filled out, the data is analyzed and entered the spreadsheet for data analysis, which produces the research outcome. By using a participants' score scale to convey the opinions of the advantages of use, usability, social influence, and preparedness for acceptance of AI instruction, the analyzed data is further brought to the SPSS analysis.

Result and Discussion

The study on "Teachers' Perception of Artificial Intelligence Usage at SMK Dato Permaisuri" is a quantitative study that employs a questionnaire and collects data using Google Forms from teachers at SMK Dato Permaisuri. The study lasted for almost one month. Five main sections in the questionnaire need to be answered by respondents: demographic section, perception of benefits of usage section, usability perception section, social influence section, and readiness for AI adoption section among teachers at SMK Dato Permaisuri. The demographic findings are shown as:

Table 1
The Demographic Findings Table in the Study

Descriptive Frequency Statistics		
Characteristic	**Frequency (n)**	**Percentage (%)**
Gender		
Male	16	21.9
Female	57	78.1
Race:		
Malay	42	57.5
Iban/ Bidayuh	15	20.5
Cjinese	15	20.5
India	0	0
Other Native	1	1.4
Marital Status		
Single	24	32.9
Married	47	64.4
Widower/Widow	2	2.7
Age		
21-30 years	14	19.2
31-40 years	29	39.7
41-50 years	14	19.2
50 years and above	16	21.9
Education lavel		
PhD	0	0
Master	7	9.6
Degree	66	90.4
Diploma	0	0
Teaching experience		
Less than 1 year	0	0
2-5 years	13	17.8
6-10 years	11	15.1
11-15 years	21	28.8
16 years and above	28	38.4
Total	73	100

Referring to the frequency data in Table 2, the level of acceptance regarding the usefulness of AI for teaching was 57 teachers, 78 percent, usability among 54 or 73 percent, and social influence 49 teachers who disagreed 67 percent. Only 13 teachers chose to use AI due to external factors such as encouragement from colleagues and superiors. Furthermore, Table 3 shows the minimum values obtained ranging from 3.86 to 4.04. This reading indicates that the average level of AI acceptance is between disagree and agree. However, the findings still lean towards agreement since 3.86 ≈ 4.00. The reading indicates a high agreement or positive acceptance toward using AI at SMK Dato Permaisuri.

Table 2
The Average Frequency of Agreement Findings From All Components in the Questionnaire According to Independent Variables

	Low Level (Very Disagree/ Disagree)	**Moderate Level** (Less Agree)	**High Level** (Very Agree/ Agree)
Perception of Benefits	1	15	57
Perception of Usability	4	15	54
Social Influence	11	49	13

The research continues to identify the dependent and independent variables related to the correction test. This analysis obtained correlation values for all variables 'r' to determine the significant relationship between independent and dependent variables 'p.' Due to scale-ty[e data, Pearson correlation analysis was used to assess the relationship between the perception of benefits and readiness for AI adoption in teaching, the perception of usability and AI adoption readiness in teaching, and social influence and readiness for AI adoption in teaching. The findings show a positive correlation between the perception of benefits and readiness for adoption, r=0.58. Additionally, the correlation value between social influence and readiness for AI adoption is r=0.65. As for the variable of perception of AI usability with readiness for AI adoption, r=0.49 (r≈0.50) is lower than the perception of benefits usage and social influence, but it still shows that the perception of usability with readiness for AI adoption only has a moderate relationship, as indicated by the strength of correlation coefficient values in table 4.

Overall, there is a moderate relationship between the perception of benefits, perception of usability, and social influence with readiness for AI adoption in teaching. Therefore, hypotheses H01, H02, and H03 are rejected.

Table 3
The Table of Independent Variables with Dependent Variables

	Minimum	**Maximum**	**Median**	**N**	**Min**	**Maxi**	**Min**
Perception of benefits of usage	2.00	5.00	4	73	2.00	5.00	3.9886
Usability perception	2.00	5.00	4	73	2.00	5.00	3.8584
Social influence	3.00	5.00	4	73	3.00	5.00	4.0411
Acceptance Readiness	2.00	5.00	4	73	2.00	5.00	3.8459
Valid N (listwise)	73						

Table 4
The Table of Independent Variables with Dependent Variables (Correlation Test)
Significant correlation relationship at the 0.01 level (2-tailed)

Correlation Test				
Variable		**Benefits of usage**	**Usability**	**Social influence**
Acceptance Readiness	Pearson Correlation	0.577**	0.487**	0.648**
	Sig. (2-tailed)	0.000	0.000	0.000
	N	73	73	73

Significance at $p \leq 0.05$

Table 5
The Table of Independent Variables with Dependent Variables (Correlation Test)

Coefisien[a]								
		Non-standard coefficient		**Standard Coefficient**	**t**	**Sig.**	**Collinearity Statistics**	
Model		B	Std. Error	Beta			Tolerance	VIF
1	Constant	0.726	0.434		1.671	0.099		
	Benefits of usage	0.209	0.159	0.224	1.311	0.194	0.278	3.596
	Usability	-0.016	0.129	-0.018	-0.121	0.904	0.353	2.833
	Social influence	0.581	0.162	0.492	3.586	0.001	0.431	2.322
a. Dependent variable: Acceptance								

Limitations of the Study

This study successfully provides an overview of the educational process at SMK Dato Permaisuri. However, it also has several limitations. One of them is that the research was only conducted at SMK Dato Permaisuri involving only 73 samples. Therefore, the results cannot be generalized to the entire secondary school education system in the country. Furthermore, although teachers at SMK Dato Permaisuri have some experience in using AI applications, the sample size used is not sufficient to provide an overall picture of the level of readiness for accepting the use of this technology among teachers throughout Malaysia. The study needs to expand its sample size to generalize the results to Malaysia at present

Implication of the Study

The findings of this study can provide useful suggestions for enhancing the use of AI among teachers to improve the quality of the educational process. This study offers perspectives on the use of AI in enhancing the teaching and learning processes of teachers in Malaysia. Involving AI can create more engaging learning experiences through assimilation.

In the Malaysian education system, there is a need for concrete actions to improve and optimize AI-based learning, such as enhancing teachers' technical skills, developing training

programs aimed at helping teachers revamp and adapt their teaching styles and interactions with students to environments with AI.

Future Research Suggestion

This study is suggested to be further expanded in terms of location to make it more robust and reliable. For example, the study could be conducted in all secondary schools in the Miri division. This study implements qualitative research. Therefore, the researcher suggests that this study could be conducted using a combined quantitative and qualitative method to obtain numeric respondent data and allow respondents to voice their perceptions on the discussed issues.

The study also suggests identifying the perceptions of female informants with males. Such a study can make the research content more engaging and informative. Therefore, new insights can be generated if the study can be conducted perfectly. Moreover, all parties need to be aware and cautious when there are links on websites or social media.

Conclusion

The use of AI in teaching and learning has evolved and accelerated rapidly among teachers worldwide, including in Malaysia. As educators, to shape and equip our students in terms of knowledge, understanding, mental and physical resilience, and mastery of their field, it is crucial to strengthen our efforts to breathe new life into the education arena and radiate excellence to our students in schools.

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