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ACCEPTANCE OF INTERACTIVE MULTIMEDIA LEARNING SOFTWARE i-TUTOR BAHASA MELAYU (i-TUTOR BM): INSIGHTS FROM RURAL SECONDARY SCHOOLS IN MALAYSIA

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Abstract:

The integration of technology in education has become increasingly vital, particularly in enhancing learning experiences in rural areas. Therefore, the aim of this study is to investigate the acceptance of an interactive multimedia learning software known as i-Tutor Bahasa Melayu (i-Tutor BM) among secondary school students in rural Malaysia. A questionnaire was adapted from Lewis (2019) to assess the software's usability (PU) and ease of use (PEU); distributed to 30 students who participated in the experimental study. The findings revealed high levels of both usability and ease of use, with average scores of 5.79 and 5.78 respectively. These results suggest that i-Tutor BM software is effective and user-friendly, indicating its potential to enhance learning outcomes in rural educational settings.

Keywords:

Educational Technology, Rural Schools, Technology Acceptance, Interactive Multimedia, *Bahasa Melayu*

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Introduction

The recent focus on incorporating interactive multimedia into the teaching and learning process in Malaysian rural secondary schools has garnered significant attention. This approach, which integrates various media elements such as text, audio, video, and animation, has shown promise in enhancing student engagement, motivation, and overall learning outcomes (Abdulrahaman et al., 2020; Idarwana Hasin & M. Khalid M. Nasir, 2021; Segar & Asmawi, 2024). As Malaysia's education system continues to evolve, the role of interactive multimedia is becoming increasingly vital, especially in rural areas where educational resources may be limited (Idarwana Hasin & M. Khalid M. Nasir, 2021). This technology offers a potential solution to bridge the educational gap between urban and rural settings, providing students in remote locations with access to diverse and engaging learning materials.

Numerous research has shown how well interactive multimedia improves student performance in several fields and disciplines (Abdulrahaman et al., 2020; Boakye et al., 2023; Segar & Asmawi, 2024). Abdulrahman et al., (2018) conducted a systematic review whereby interactive multimedia improves student performance, engagement, and academic achievements when applied in all spheres of education either formal or informal. Likewise, some research acknowledged multimedia as a constructivist learning environment that allows students to investigate and participate in their education (Karthika et al., 2022; Tang et al., 2018; Tracy Valerian et al., 2020; Yang et al., 2022).

Using interactive multimedia has been shown in the context of language education to improve students' proficiency in oral communication and language abilities (Segar & Asmawi, 2024). Podcasts, speech recognition software, and interactive presentations have been found to help increase listening skills, pronunciation accuracy, fluency, vocabulary acquisition, and grammar competency (Segar & Asmawi, 2024). Specifically, in examining the influence of podcasts on EFL students' listening comprehension, Abdulrahman et al., (2018) found that these tools significantly improved the students' listening abilities.

Interactive multimedia presents possible advantages for rural secondary schools, but its use is currently hampered (Idarwana Hasin & M. Khalid M. Nasir, 2021). Research done in rural secondary schools in Malaysia found problems with information technology that affect instructors and pupils including a lack of facilities and competence (Faisal Mustafa et al., 2024; Idarwana Hasin & M. Khalid M. Nasir, 2021; Kormos & Wisdom, 2021). The study highlighted the importance of providing adequate tools and facilities in schools, along with offering relevant ICT training for teachers

Given the relevance of the problem, this study sought to evaluate, in rural secondary schools in Malaysia, the adoption of the i-Tutor BM interactive multimedia learning program depending on user experiences. The study focused especially on perceived ease of use (PEU) and usability (PU). Consequently, the three primary goals of this research are to:

1. Assess the overall acceptance of the i-Tutor BM software from user experiences.
2. Evaluate the software's acceptance in terms of perceived usability (PU) based on user feedback.
3. Investigate the software's acceptance concerning perceived ease of use (PEU) from user feedback.

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Literature Review

Technology's inclusion into the classroom has changed conventional teaching strategies and opened fresh chances to improve learning environments. The ability of Interactive Multimedia Learning Software (IMLS) to include students, simplify knowledge acquisition, and raise instructional results has been underlined even more. With an eye on elements influencing IMLS adoption, the hurdles encountered, and the noted effects on student learning, this literature review seeks to integrate recent studies on the acceptance of IMLS in rural secondary schools.

Factors Influencing Acceptance

Several elements define the acceptability of Interactive Multimedia Learning Software (IMLS) in rural secondary schools. The key is technological infrastructure since obsolete devices and bad internet restrict their application. Teacher competency is another factor; constant training helps to increase acceptance rates. Teachers' and students' inclination to utilize IMLS depends on perceived benefits and ease of use. Finally, the reception of new technology in rural locations is influenced by cultural and social elements including conventional teaching preferences and community support.

Technological Infrastructure and Accessibility

The availability of technological infrastructure significantly influences the acceptability of IMLS in rural secondary schools. Studies on poor internet connectivity and lack of access to current devices have revealed how poorly IMLS (Mbawala & Lestari, 2024; Phuntsho, 2022; Soma et al., 2021). are used. Moreover, the differences in digital resources between urban and rural areas aggravate this problem and underline the need for focused expenditures on rural educational infrastructure (Afzal et al., 2023; Xu Linlin et al., 2024).

Teacher Competency and Professional Development

Acceptance of IMLS depends much on teachers' preparedness and capacity to include it in their curricula. Essential are professional development initiatives to improve teachers' digital literacy and pedagogical skills (Abdillah et al., 2021; To Khuyen et al., 2020; Tondeur et al., 2023). Studies show that ongoing education and assistance help teachers feel more confident and competent in using IMLS, thereby increasing their acceptance rates (Ani Hastuti et al., 2022; Mahmud et al., 2023; Nguyen, 2023; Sherly et al., 2022; Sumaryanta et al., 2018).

Perceived Usefulness and Ease of Use

The popularity of IMLS among teachers and students depends mostly on its apparent usefulness (PU) and ease of usage (PEU). According to the Technology Acceptance Model (TAM), these impressions affect consumers' attitudes and intentions to utilize technology (Davis, 1989). Recent studies confirm that when teachers and students find IMLS simple to use and beneficial for learning, their acceptance levels increase (Al-Adwan et al., 2023; Camilleri & Camilleri, 2020; Chen, 2022; Choiriyah et al., 2022; Han & Sa, 2022; Haryudin & Imanullah, 2021; Hasri et al., 2023; Putriana et al., 2022).

Cultural and Social Factors

Acceptance of IMLS also results from cultural attitudes regarding technology and education. Some rural towns have strong roots for their conventional teaching strategies and could object to using modern technologies (Wang et al., 2021). Furthermore, very important for creating a good environment for technological adoption are parental support and community involvement (Kormos & Wisdom, 2021).

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Challenges in Adoption

Adopting Interactive Multimedia Learning Software (IMLS) in rural schools faces challenges including financial constraints for technology investment and maintenance, limited technical support, making troubleshooting difficult, and curriculum integration issues, where teachers struggle to match IMLS with standardized requirements.

Financial Constraints

Financial constraints provide a considerable obstacle to the extensive implementation of IMLS in rural secondary educational institutions. Numerous rural schools function with constrained finances, hindering their ability to invest in essential hardware and software (Yahaya & Adnan, 2021). Furthermore, continuous maintenance and enhancements necessitate a persistent financial investment (Muñoz-najar, 2021).

Technical Support and Maintenance

The absence of technical support and maintenance services in rural regions exacerbates the challenges associated with the deployment of IMLS. Educational institutions frequently encounter challenges in resolving technical problems, resulting in frustration and diminished use (Faisal Mustafa et al., 2024). Implementing strong support systems is crucial for the effective functioning of IMLS (Deng et al., 2022).

Curriculum Integration

Incorporating IMLS into the current curriculum poses difficulties due to inflexible educational frameworks and standardized assessment mandates. Educators may find it challenging to synchronize multimedia content with curriculum goals and assessment standards (Anwar Farhan Mohamad Marzaini et al., 2023). Adaptable curricula that integrate technological advancements are essential to surmount this obstacle (Cartner & Hallas, 2020).

Impacts on Student Learning

Interactive Multimedia Learning Software (IMLS) enhances student engagement through interactive elements, improves learning results in intricate subjects, and fosters digital literacy skills for future success.

Enhanced Engagement and Motivation

IMLS has demonstrated a substantial improvement in student involvement and motivation. Interactive components, like animations, simulations, and gamification, engage pupils and enhance the enjoyment of learning (Mazulfah, 2020). Research indicates that students utilizing IMLS demonstrate heightened interest in subjects and are more inclined to engage actively in class (Bizhanova, 2023).

Improved Learning Outcomes

Research demonstrates that IMLS can enhance learning outcomes, especially in disciplines necessitating visualization and interactive engagement (Shahzad et al., 2021). Multimedia software has been shown useful in imparting complicated scientific concepts and improving students' comprehension (Bărbuleț, 2023; Cheng, 2023; Mishra, 2020; Uwineza et al., 2023). Furthermore, IMLS facilitates differentiated learning, enabling students to progress at their own pace and by their own needs (Mohammed & Haroun, 2017; Risky Aulia et al., 2023).

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Development of Digital Literacy Skills

The use of IMLS in rural secondary schools enhances students' digital literacy skills. These competencies are crucial for their future academic and professional achievements (Salem, 2022; Sundapa, 2022; Wuthnow, 2023). Familiarity with multimedia tools and digital resources equips students to traverse the progressively digitalized landscape (So et al., 2019).

The use of Interactive Multimedia Learning Software in rural secondary schools is affected by various aspects, such as technological infrastructure, teacher proficiency, perceived utility, and cultural attitudes. Despite considerable hurdles, especially concerning financial limitations and technical assistance, the beneficial effects on student engagement, learning outcomes, and digital literacy highlight the transformative potential of IMLS in rural education. Subsequent studies ought to concentrate on finding techniques to surmount these obstacles and optimize the advantages of IMLS for all students.

Methodology

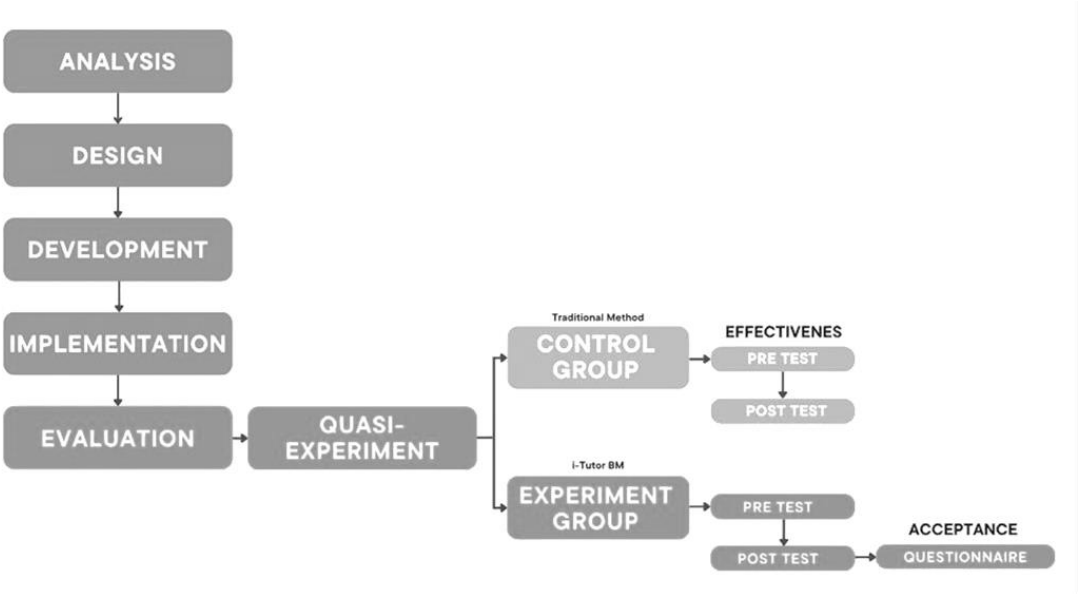

Figure 1: Methodology Flow

This study was conducted as part of the research activities carried out during the evaluation phase in the ADDIE model. After the evaluation study of the effectiveness of the i-Tutor BM software was conducted using a quasi-experimental approach, the study sample comprised 30 students from an experimental group that utilized the i-Tutor BM software during the intervention phase. The flow of this research can be seen in as shown in Figure 1.

This research utilized a quantitative methodology using a survey to examine the acceptance of the i-Tutor BM software among secondary school students in rural areas. The research instrument employed was a 12-item questionnaire, derived from Lewis (2019), intended to assess two constructs: perceived usability (PU) and perceived ease of use (PEU) grounded in user experience. PU denotes the conviction that the system improves work performance, whereas PEU signifies the opinion that utilizing the system requires minimal effort. The questionnaire comprised two sections: Part A, which gathered demographic information, and

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Part B, which included 12 questions regarding usability (PU) and ease of use (PEU), with six questions allocated to each construct. All items were evaluated using a 7-point Likert scale.

Researchers, Cohen (1988) and Johanson and Brooks (2010), assert that a sample size of 30 is enough for quasi-experimental investigations, facilitating reliable statistical analysis while being practical in educational contexts. A pilot study was executed including 31 students from a secondary school in Julau, Sarawak, to evaluate the dependability of the research instrument. The results demonstrated substantial reliability, evidenced by a Cronbach's Alpha of 0.963 for the dimensions of usability and ease of use, affirming the questionnaire's consistency across various samples and contexts (Mohd Salleh, 2000). The survey was administered after the students finished using the i-Tutor BM software during the intervention period. The survey was administered in person to guarantee adequate participation and response gathering. Following data collection, the survey results were analysed to produce descriptive statistics that elucidated the demographic features of the participants and the two principal variables of the study: usability (PU) and ease of use (PEU).

Data Analysis

The data will be analysed using descriptive analysis, focusing on four key areas: (i) demographic information, (ii) perceived usability (PU), (iii) perceived ease of use (PEU), and (iv) the acceptance of i-Tutor BM. Descriptive statistics will be employed to summarize and present the data clearly and concisely, allowing for an examination of patterns and trends. The analysis will provide insights into the characteristics of the participants, their usability experience, the ease with which they can navigate the i-Tutor BM, and their overall acceptance of the software. The mean score of each component is interpreted based on the scale provided by Ramlee Ismail et al. (2020) which is shown in Table 1. The result levels are grouped to different categories by a 7-point Likert scale-based structure.

The formula for calculating the range of each category is:

$$\frac{(Highest\ Scale - Lowest\ Scale)}{N\ point} = Scale$$

where “Highest Scale” is 7 and “Lowest Scale” is 1, with *N* being the number of the points (in this case is 5).

Table 1: Interpretation of Mean Score

Mean Score	Level
5.81 - 7.00	Very High
4.61 – 5.80	High
3.41 – 4.60	Moderate
2.21 – 3.40	Low
1.00 - 2.20	Very Low

This table helps to evaluate the respondents' perceptions or feedback in terms of specific levels, making it easier to draw conclusions about the data. For example, if the mean score is 5.5, it falls within the "High" category, suggesting a positive response.

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Demographic

The demographic analysis of the respondents, shown in Table 2, reveals that the sample comprises 30 students, all aged 13, who belong to the Iban ethnic group. The gender breakdown indicates that 43.33% (13 students) of the participants are male, whereas 56.67% (17 students) are female. Notwithstanding the minor variation in gender distribution, the researcher refrained from performing a correlation analysis between gender and the variables of assessed usefulness and perceived ease of use. The demographic findings indicate that gender was not deemed a significant factor affecting the results of this investigation. The uniformity in age and ethnicity, with all participants being 13-year-old Iban kids, offers a concentrated framework for evaluating the adoption of the i-Tutor BM software. This demographic homogeneity may mitigate external variability, enabling the analysis to focus more directly on the software's acceptance inside the sample group, and eliminating the necessity to account for cultural or age-related disparities.

Table 2: Demographic of Respondents

Demographic		Experimental Group (n=30)	Percentage %
Gender	Male	13	43.33
	Female	17	56.67
Age	13	30	100.00
Race	Iban	30	100.00

Usability (PU)

This study defines usability (PU) as the extent to which students perceive that utilizing i-Tutor BM would enhance their productivity. Participants were instructed to express their agreement or disagreement with six assertions concerning the usability (PU) of i-Tutor BM using a 7-point Likert scale, ranging from "1" (strongly disagree) to "7" (strongly agree). The six items, derived from Lewis (2019), are intended to assess perceived usability (PU) grounded in user experience.

Table 3 (next page) indicates that the perceived usability (PU) of i-Tutor BM software is favorable among respondents, with an overall mean score of 5.79, categorizing it within the "High" usability level. The software is deemed successful in enhancing learning performance, evidenced by a mean score of 5.87 categorized as "Very High," with 40.0% of respondents expressing strong agreement. Furthermore, 43.3% of participants strongly concurred that i-Tutor BM software improves learning efficacy, yielding a "Very High" mean score of 5.83. The software's capacity to streamline learning tasks garnered a "Very High" rating, with an average score of 5.90. Respondents assigned high ratings to the software for enhancing productivity and expediting work completion, with mean scores of 5.67 and 5.70, respectively. Ultimately, 50.0% of participants strongly concurred that i-Tutor BM software is beneficial for their education, resulting in a "High" assessment with an average score of 5.77. In conclusion, the i-Tutor BM software is regarded as a highly effective learning tool, notably in improving learning efficacy, performance, and ease of acquisition.

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Table 3: Usability (PU) of i-Tutor BM

No	Item	Scale (Frequecy and Percentage)							Mean	Level
		1	2	3	4	5	6	7		
1	Using i-Tutor BM in my study enables me to accomplish task more quickly than other products in its class.	-	-	-	-	16 (53.3%)	7 (23.3%)	7 (23.3%)	5.70	High
2	Using i-Tutor improves my learning performance.	-	-	-	-	11 (36.7%)	12 (40.0%)	7 (23.3%)	5.87	Very High
3	Using i-Tutor in my study increased my productivity.	-	-	-	-	15 (50.0%)	10 (33.3%)	5 (16.7%)	5.67	High
4	Using i-Tutor enhances my effectiveness of my learning.	-	-	-	-	13 (43.3%)	9 (30.0%)	8 (26.7%)	5.83	Very High
5	Using i-Tutor makes my learning easier.	-	-	-	-	10 (33.3%)	13 (43.3%)	7 (23.3%)	5.90	Very High
6	I found that i-Tutor BM is useful for my learning.	-	-	-	-	15 (50.0%)	7 (23.3%)	8 (26.7%)	5.77	High
								Overall	**5.79**	**High**

Ease of Use (PEU)

In this study, perceived ease of use (PEU) denotes the degree to which users believe that engaging with i-Tutor BM software necessitates low effort. Participants were requested to indicate their degree of agreement or disagreement with six statements about the i-Tutor BM concept (PEU) utilizing a 7-point Likert scale, from "1" (strongly disagree) to "7" (strongly agree). These six items, modified from Lewis (2019), were particularly formulated to evaluate perceived ease of use (PEU) based on user experiences.

Table 4 (next page) indicates that respondents consistently score the perceived ease of use (PEU) of the i-Tutor BM software as high across all six criteria. The average scores vary from 5.47 to 6.17, reflecting a robust general assessment of the software's usability. Participants perceived the program operation as rather uncomplicated, achieving a mean score of 5.47, and considered it straightforward to elicit the necessary performance from the software, shown by a mean score of 5.63. The software interaction was regarded as clear and comprehensible, attaining a mean score of 5.87. Furthermore, participants indicated that the software was adaptable for interaction and straightforward to master, with both aspects attaining mean scores of 5.77. The highest-rated question, with a mean score of 6.17, demonstrated that respondents predominantly perceived the i-Tutor BM software as user-friendly. The overall mean score of 5.78 indicates a robust positive view of the software's user-friendliness, facilitating a straightforward and seamless learning experience.

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Table 4: Ease of Use (PEU) of i-Tutor BM

No	Item	Scale (Frequency and Percentage)							Mean	Level
		1	2	3	4	5	6	7		
7	Learning to operate i-Tutor BM was easy for me.	-	-	-	-	20 (66.7%)	6 (20.0%)	4 (13.3%)	5.47	High
8	I found it easy to get i-Tutor BM to do what I want it to do.	-	-	-	-	14 (46.7%)	13 (43.3%)	3 (10.0%)	5.63	High
9	My interaction with i-Tutor BM has been clear and understandable.	-	-	-	-	11 (36.7%)	12 (40.0%)	7 (23.3%)	5.87	Very High
10	I found i-Tutor BM to be flexible to interact with.	-	-	-	-	15 (50.0%)	7 (23.3%)	8 (26.7%)	5.77	High
11	It was easy for me to become skillful at using i-Tutor BM.	-	-	-	-	13 (43.3%)	11 (36.7%)	6 (20.0%)	5.77	High
12	I found i-Tutor BM easy to use.	-	-	-	-	7 (23.3%)	11 (36.7%)	12 (40.0%)	6.17	High
								Overall	**5.78**	**High**

Acceptance of i-Tutor BM based on User Experience

The analysis of Table 5 (next page), which assesses the acceptance of i-Tutor BM software based on user experience in rural secondary schools, reveals a significant degree of acceptance. The software's usability (PU) attained a mean score of 5.79, indicating a robust positive perception among users for its effectiveness and utility in augmenting their learning. The perceived ease of use (PEU) attained a high rating, with a mean score of 5.78, indicating that users consider the software easy to browse and necessitating low effort for interaction. The average acceptance level of i-Tutor BM software is assessed as high, with a mean score of 5.79. This indicates that the software is positively regarded and deemed appropriate for rural settings, especially as it functions entirely offline, rendering it accessible and practical for remote secondary schools.

Table 5: Acceptance of i-Tutor BM

No	Construct	Min	Level
1	Usability (PU)	5.79	High
2	Ease of Use (PEOU)	5.78	High
	Overall	**5.79**	**High**

Discussion

This study reveals the favourable acceptability and perceived utility of the i-Tutor BM learning software among rural secondary school pupils. The findings demonstrate that students perceived the software as exceptionally useable, especially for its capacity to enhance learning performance, effectiveness, and productivity. This corresponds with prior research indicating

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that interactive multimedia improves student engagement and learning outcomes in diverse educational contexts (Abdulrahaman et al., 2020; Segar & Asmawi, 2024). The elevated usability scores indicate that i-Tutor BM can function as an effective educational instrument, particularly in rural regions where access to excellent learning resources is constrained.

A significant factor influencing the effective adoption of i-Tutor BM software, as indicated in the research, is the perceived ease of use (PEU). The data analysis indicated that students perceived the software as user-friendly, evidenced by elevated mean ratings across all six criteria assessing ease of use. This aligns with the Technology Acceptance Model (TAM), which asserts that perceived ease of use substantially affects consumers' intention to embrace new technologies (Davis, 1989). The software's user-friendly navigation and comprehensible user interface facilitated a seamless and delightful learning experience for students. The findings corroborate existing literature, emphasizing the significance of user-friendly interfaces in enhancing the adoption of educational technology (Al-Adwan et al., 2023; Hasri et al., 2023).

Nonetheless, despite the favourable reception of i-Tutor BM software, obstacles to the widespread implementation of interactive multimedia learning software in rural secondary schools persist. Persistent challenges to the general adoption of such software include inadequate technological infrastructure, financial limitations, and insufficient technical support (Idarwana Hasin & M. Khalid M. Nasir, 2021; Yahaya & Adnan, 2021). The effective implementation of i-Tutor BM software in rural schools necessitates overcoming these obstacles via strategic investments in technology and educator training, alongside the creation of adaptable curricula that incorporate multimedia content (Cartner & Hallas, 2020).

The study substantiates the efficacy of i-Tutor BM software in improving education in rural secondary schools. The favourable response from students highlights the necessity of ongoing initiatives to facilitate the incorporation of interactive multimedia technology in rural educational environments.

Conclusion

This study has yielded significant insights into the acceptance and usability of i-Tutor BM software, an interactive multimedia learning program intended for rural secondary schools in Malaysia. The results demonstrate that the software is favourably regarded by students, exhibiting elevated levels of perceived usefulness and user-friendliness. These favourable perceptions underscore the capacity of interactive multimedia tools to enhance learning outcomes, particularly in environments with restricted access to educational materials. The research highlights the necessity of overcoming significant obstacles to the extensive implementation of these technologies in rural educational institutions. Challenges about technological infrastructure, financial limitations, and the necessity for continuous technical assistance must be addressed to guarantee the effective adoption of interactive multimedia learning software. By confronting these issues, educational institutions can realize the complete potential of technologies such as i-Tutor BM software, offering students stimulating and efficient learning experiences.

Future research must concentrate on formulating sustainable strategies for incorporating interactive multimedia into rural educational systems, prioritizing teacher training, infrastructure enhancement, and curriculum adaptability. Consequently, the education system

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in rural regions can be enhanced to address the requirements of students and mitigate the digital divide between urban and rural schools.

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Conflicts of Interest
The authors declare that they have no conflicts of interest to report regarding the present study.

Reference
Abdillah, F. N., Ulfatin, N., & Mustiningsih, M. (2021). Kompetensi Kepribadian Dominan Dalam Pendidikan Profesi Guru. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*. https://doi.org/10.17977/jptpp.v6i3.14616

Abdulrahaman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., Imam-Fulani, Y. O., Fahm, A. O., & Azeez, A. L. (2020). Multimedia tools in the teaching and learning processes: A systematic review. *Heliyon*, *6*(11), e05312. https://doi.org/10.1016/j.heliyon.2020.e05312

Abdulrahman, T., As-syafi, U. I., Basalama, N., As-syafi, U. I., Widodo, M. R., & As-syafi, U. I. (2020). The Impact Of Podcasts On EFL Students ' Listening Comprehension. *International Journal of Language Education*, *2*(2), 23–33.

Afzal, A., Khan, S., Daud, S., Ahmad, Z., & Butt, A. (2023). Addressing the Digital Divide: Access and Use of Technology in Education. *Journal of Social Sciences Review*. https://doi.org/10.54183/jssr.v3i2.326

Al-Adwan, A. S., Li, N., Al-Adwan, A., Abbasi, G. A., Albelbisi, N. A., & Habibi, A. (2023). "Extending the Technology Acceptance Model (TAM) to Predict University Students' Intentions to Use Metaverse-Based Learning Platforms". *Education and Information Technologies*. https://doi.org/10.1007/s10639-023-11816-3

Ani Hastuti, T., Soegiyanto, Suherman, W. S., Rahayu, S., & Utami, N. S. (2022). Improving the pedagogic competence of physical education teachers. *Cakrawala Pendidikan*. https://doi.org/10.21831/cp.v41i2.48231

Anwar Farhan Mohamad Marzaini, Wan Nurul Elia Haslee Sharil, Kaarthiyainy Supramaniam, & Shahazwan Mat Yusoff. (2023). The Teachers ' Professional Development in The Implementation of CEFR- The Teachers ' Professional Development in The Implementation of CEFR-Aligned Classroom Based Assessment. *Asian Journal of Assessment in Teaching and Learning*, *13*(1), 1–14. https://doi.org/10.37134/ajatel.vol13.1.1.2023

Bărbuleț, G. D. (2023). The Use of Multimedia in Language Teaching. *Swedish Journal of Romanian Studies*. https://doi.org/10.35824/sjrs.v6i1.24967

Bizhanova, A. A. (2023). The use of software technologies in teaching a foreign language. *Bulletin of the Karaganda University Pedagogy Series*. https://doi.org/10.31489/2023ped2/139-147

Boakye, A. A., Essel, H. B., Appiah, E., & Essuman, M. A. (2023). A Systematic Review of Interactive Multimedia-based Learning: an Effective Strategy of Teaching Art History. *Journal of Kwame Nikrumah*, 1–14.

International Journal of Modern Education
EISSN: 2637-0905
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Volume 6 Issue 23 (December 2024) PP. 598-612
DOI: 10.35631/IJMOE.623041

Camilleri, M. A., & Camilleri, A. C. (2020). The students' readiness to engage with mobile learning apps. *Interactive Technology and Smart Education*. https://doi.org/10.1108/ITSE-06-2019-0027

Cartner, H., & Hallas, J. (2020). *Aligning assessment , technology , and multi-literacies*. https://doi.org/10.1177/2042753019899732

Chen, J. (2022). Adoption of M-learning apps: A sequential mediation analysis and the moderating role of personal innovativeness in information technology. *Computers in Human Behavior Reports*. https://doi.org/10.1016/j.chbr.2022.100237

Cheng, Y. (2023). Multimedia programmes: creating computer music to enhance creative thinking. *Interactive Learning Environments*. https://doi.org/10.1080/10494820.2022.2039950

Choiriyah, Mayuni, I., & Dhieni, N. (2022). The Effectiveness of Multimedia Learning for Distance Education Toward Early Childhood Critical Thinking During the COVID-19 Pandemic. *European Journal of Educational Research*. https://doi.org/10.12973/eu-jer.11.3.1555

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. In *Lawrence Erlbaum Associates* (2nd ed.). https://doi.org/10.2307/2529115

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, *13*(3), 319–339. https://doi.org/10.2307/249008

Deng, Y., Mueller, M., Rogers, C., & Olechowski, A. (2022). The multi-user computer-aided design collaborative learning framework. *Advanced Engineering Informatics*, *51*, 101446. https://doi.org/10.1016/j.aei.2021.101446

Faisal Mustafa, Nguyen, H. T. M., & Gao, X. (Andy). (2024). The challenges and solutions of technology integration in rural schools: A systematic literature review. *International Journal of Educational Research*, *126*(May), 102380. https://doi.org/10.1016/j.ijer.2024.102380

Han, J. H., & Sa, H. J. (2022). Acceptance of and satisfaction with online educational classes through the technology acceptance model (TAM): the COVID-19 situation in Korea. In *Asia Pacific Education Review*. https://doi.org/10.1007/s12564-021-09716-7

Haryudin, A., & Imanullah, F. (2021). The Utilization of Kinemaster Appliations in the Making of Multimedia based Teaching Materials for English e-learning in New Normal (Covid-19). *PROJECT (Professional Journal of English Education)*. https://doi.org/10.22460/project.v4i2.p341-352

Hasri, S. A., Fitria, Y., & Erita, Y. (2023). Interactive Multimedia Based on Adobe Flash Software on Thematic Learning for Grade V Elementary School. *Indonesian Journal of Educational Research and Review*. https://doi.org/10.23887/ijerr.v6i2.66087

Idarwana Hasin, & M. Khalid M. Nasir. (2021). The effectiveness of the use of Information and Communication Technology (ICT) in rural secondary schools in Malaysia. *Journal of Education and E-Learning Research*, *8*(1), 59–64. https://doi.org/10.20448/JOURNAL.509.2021.81.59.64

Johanson, G. A., & Brooks, G. P. (2010). Initial Scale Development: Sample Size for Pilot Studies. *Educational and Psychological Measurement*, *70*(3), 394–400. https://doi.org/10.1177/0013164409355692

Karthika, S., Kanimozhi, T., & Vasimalairaja, M. (2022). Effectiveness of Interactive Multimedia Package in Mathematics on Problem Solving Ability of Higher Secondary Students. *Vidyabharati International Interdisciplinary Research Journal (Special Issue)*, *August*.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 23 (December 2024) PP. 598-612
DOI: 10.35631/IJMOE.623041

Kormos, E., & Wisdom, K. (2021). Rural Schools and the Digital Divide. *Theory & Practice in Rural Education*, *11*(1), 25–39. https://doi.org/10.3776/tpre.2021.v11n1p25-39

Lewis, J. R. (2019). Comparison of Four TAM Item Formats: Effect of Response Option Labels and Order. *Journal of Usability Studies*, *14*(4), 224–236.

Mahmud, A. F., Usman, A. H., Sari, F. W., & Dahlan, S. (2023). Lesson Study Contributions: EFL Teachers' Competences Model in Teaching English at High School 21st-Century Learning Approach. *World Journal of English Language*. https://doi.org/10.5430/wjel.v13n7p10

Mazulfah. (2020). The Importance of Multimedia Learning Tools in Education. *ITELL (Indonesia Technology Enhanced Language Learning)*.

Mbawala, J. J., & Lestari, S. (2024). The Use and Challenges of ICT in Primary Schools: A Study of Selected Primary Schools in Ilala, Tanzania. *International Journal of Research and Innovation in Social Science*. https://doi.org/10.47772/ijriss.2024.801133

Mishra, N. R. (2020). Use of ICT in Classroom: An Analysis of Teachers' and Students' Perception on ICT Tools. *Rupantaran: A Multidisciplinary Journal*. https://doi.org/10.3126/rupantaran.v4i1.34207

Mohammed, M., & Haroun, H. G. (2017). Instructional Television: A Multimedia Approach for Effective Teaching and a Viable Solution to Poor Students' Academic Performace in Nigerian Schools. *IOSR Journal of Research & Method in Education (IOSRJRME)*. https://doi.org/10.9790/7388-0701042226

Muñoz-najar, A. (2021). Remote Learning Covid-19 : Principles for Tomorrow. *Report*, *1*(1), 62.

Nguyen, N. T. L. (2023). How to develop four competencies for teacher educators. *Frontiers in Education*. https://doi.org/10.3389/feduc.2023.1147143

Phuntsho, T. (2022). Experiences of Teachers in Implementing the "Education in Emergency" During COVID-19 pandemic, 2020: A Case Study in Lower Secondary School in Eastern Bhutan. *Bhutan Journal of Research and Development*. https://doi.org/10.17102/bjrd.rub.11.2.032

Putriana, S., Nellitawati, N., Bentri, A., & Alwi, N. A. (2022). Development of Interactive Multimedia Based on Powerpoint in Science Learning in Elementary School. *AL-ISHLAH: Jurnal Pendidikan*. https://doi.org/10.35445/alishlah.v14i2.1986

Risky Aulia, N., Hartono, R., & Rozi, F. (2023). The Effectiveness of Interactive Multimedia-Based Learning Using Powtoon and Renderforest in Teaching Writing to Students with Different Learning Styles. *International Journal of Research and Review*. https://doi.org/10.52403/ijrr.202308102

Salem, A. A. M. S. (2022). Multimedia Presentations Through Digital Storytelling for Sustainable Development of EFL Learners' Argumentative Writing Skills, Self-Directed Learning Skills and Learner Autonomy. In *Frontiers in Education*. https://doi.org/10.3389/feduc.2022.884709

Segar, T., & Asmawi, A. (2024). *Harnessing Multimedia for Elevating English- Speaking Proficiency in Malaysia : A Thematic Review*. *18*(2), 35–67.

Shahzad, M., Nadeem, M. A., & U-Nisa, Z. (2021). Developing Learning Environment Using Interactive Multimedia. *Pakistan Journal of Distance & Online Learning*, *I*, 93–106.

Sherly, S., Gultom, S., Daryanto, E., & Nasrun, N. (2022). Development of competency-based continuous professional development (PKB) training management model to improve competence and research culture for middle school teachers in Pematangsiantar City. *International Journal of Health Sciences*. https://doi.org/10.53730/ijhs.v6ns5.10785

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 23 (December 2024) PP. 598-612
DOI: 10.35631/IJMOE.623041

So, W. W. M., Chen, Y., & Wan, Z. H. (2019). Multimedia e-Learning and Self-Regulated Science Learning: a Study of Primary School Learners' Experiences and Perceptions. *Journal of Science Education and Technology*. https://doi.org/10.1007/s10956-019-09782-y

Soma, A., Nantomah, I., & Adusei, R. (2021). The Challenges Facing the Integration of ICT in Ghanaian Educational System: A Systematic Review of Literature. *International Journal of Humanities, Social Sciences and Education*. https://doi.org/10.20431/2349-0381.0811001

Sumaryanta, Mardapi, D., Sugiman, & Herawan, T. (2018). Assessing Teacher Competence and Its Follow-up to Support Professional Development Sustainability. *Journal of Teacher Education for Sustainability*. https://doi.org/10.2478/jtes-2018-0007

Sundapa, A. (2022). Interactive Multimedia Development Using Adobe Flash Cs6 to Improve Critical and Creative Thinking Skills of Class VIII Junior High School Students. *International Journal of Current Science Research and Review*. https://doi.org/10.47191/ijcsrr/v5-i11-15

Tang, D., Ho, K., & Intai, R. (2018). Effectiveness of Audio-visual Aids in Teaching Lower Secondary Science in a Rural Secondary School. *Asia Pacific Journal of Educators and Education*, *32*, 91–106. https://doi.org/https://doi.org/10.21315/apjee2017.32.7

To Khuyen, N. T., Van Bien, N., Lin, P. L., Lin, J., & Chang, C. Y. (2020). Measuring teachers' perceptions to sustain STEM education development. *Sustainability (Switzerland)*. https://doi.org/10.3390/su12041531

Tondeur, J., Howard, S., Van Zanten, M., Gorissen, P., Van der Neut, I., Uerz, D., & Kral, M. (2023). The HeDiCom framework: Higher Education teachers' digital competencies for the future. *Educational Technology Research and Development*. https://doi.org/10.1007/s11423-023-10193-5

Tracy Valerian, Norjietta Taisin, & Pujiati Suyata. (2020). The Effectiveness of Learning Boros Maan Module Based on Interactive Multimedia on Pupils' Achievement in Vocabulary. *MJSSH Online*, *4*(4), 90–96. https://doi.org/https://doi.org/10.33306/mjssh/99

Uwineza, I., Uworwabayeho, A., & Yokoyama, K. (2023). Grade-3 Learners' Performance and Conceptual Understanding Development in Technology-Enhanced Teaching With Interactive Mathematics Software. *European Journal of Educational Research*. https://doi.org/10.12973/eu-jer.12.2.759

Wang, J., Tigelaar, D. E. H., & Admiraal, W. (2021). Rural teachers' sharing of digital educational resources: From motivation to behavior. *Computers and Education*, *161*(April 2020), 1–17. https://doi.org/10.1016/j.compedu.2020.104055

Wuthnow, J. (2023). Multimodal literacies and critical reflexivity: Digital storytelling as a 21st century tool for Learning Developers. *Journal of University Teaching and Learning Practice*. https://doi.org/10.53761/1.20.4.02

Xu Linlin, Zheng Jiahui, Mohd Yusoff, A., & Hasan, S. (2024). Research on the Gap between Urban and Rural Secondary Education in Shandong Province in the Internet Era. *International Journal of Social Science and Business Management*. https://doi.org/10.59021/ijssbm.v2i01.80

Yahaya, M., & Adnan, W. H. (2021). Cabaran Pelajar Melalui Kaedah Pembelajaran Atas Talian: Kajian Institusi Pengajian Tinggi Awam Malaysia. *Journal of Media and Information Warfare*, *14*(1), 11–20.

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 23 (December 2024) PP. 598-612
DOI: 10.35631/IJMOE.623041

Yang, W., Pan, Y., & Liu, B. (2022). Application of Multimedia Technology in Middle School Education Management. *Journal of Internet Technology*. https://doi.org/10.53106/160792642022012301012