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Exploring the Use of Google Jamboard for Interactive Collaboration in a Language Learning Environment

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Abstract

Google Jamboard is a web-based platform that can be used for interactive collaboration in language learning. This study explores how students perceive and adopt Google Jamboard for collaborative language learning activities using the Technology Acceptance Model (TAM) as a theoretical framework. TAM examines technological adoption through perceived usefulness and ease of use and this study expanded to include fun, attitudes, and behavioural intentions. This research adopts a quantitative methodology using surveys with questionnaires to gather data from 45 participants. The analysis focused on the aspects of fun perception, usefulness, ease of use, attitudes, and intentions towards using Jamboard, revealing mean scores between 3.33 and 4.44 with 'Fun Perception and Attitude' scoring the highest at 4.44. This showed the significance of Jamboard's appeal due to its user-friendliness, convenience, and engaging nature. The analysis also confirms all proposed hypotheses indicating that perceived ease of use, usefulness, and the 'fun' aspect of Jamboard significantly affect the students' attitudes and their intention to use Google Jamboard. Thus, these findings suggest the potential to integrate Google Jamboard to teach language and enhance student motivation and interest, offering significant implications for educators aiming to leverage technology tools for improved learning outcomes in language education.

Keywords: - Google Jamboard, collaboration, technology acceptance model

1. Introduction

Over the last few years, technological advancements have significantly reshaped language education, with an emphasis on interactive multimedia tools. The change towards interactive multimedia has been emphasized by Jiang, L., Meng, H., and Zhou, N. (2021), who note its profound impact on language learning patterns. Moreover, Kennedy (2020) points out a prevalent assumption, which remains to be meticulously confirmed, suggesting that integrating interactivity in digital or online educational contexts inherently leads to increased student engagement and, consequently, expands learning experiences. Among the tools that have gained prominence in this evolving landscape is Google Jamboard. As described by Abdel-Reheem Amin (2020), Google Jamboard, part of Google's Apps for Education, is a web-based platform that supports online learning processes. Specifically, it is a digital whiteboard within the Google Suite, intended to foster a comprehensive collaborative experience in virtual educational settings. This functionality is mainly beneficial for collaborative language learning, significantly augmenting the effectiveness of such endeavours. Additionally, Khoiriyah, Kairoty, N., & Virdhausya Aljasysyarin, A. (2022) emphasize that Jamboard offers an array of functionalities adeptly suited for language education, further underscoring its utility in this domain.

The use of Computer-Assisted Language Learning (CALL), particularly through web-based platforms such as Google, has gathered considerable attention within academic circles. Numerous studies, including those conducted by Islam (2019) and Nanthinii (2020), have

focused on investigating the effectiveness of these tools in improving the four fundamental language skills: listening, speaking, reading, and writing.

Previous research has examined the effects of these digital tools on numerous aspects of language learning, including communication skills and oral proficiency, as thorough in the works of Ebadi and Ebadijalal (2020), and the improvement of academic writing abilities, as explored by Alharbi (2020), Ebadi and Rahimi (2017), and Tsai (2020). The objective of this research is to examine the perception of students in Technical and Vocational Education and Training (TVET) at Community Colleges pertaining to the use of Google Jamboard for interactive smartboard applications. Furthermore, it is hoped that this study will provide a more reflective understanding of students' perceptions of the technological resources employed in language education, with a special focus on the acceptance and usability of Google Jamboard.

Google Jamboard has been successfully integrated with many cloud-based applications to enhance real-time collaboration between educators and students. This integration objective is to make a more dynamic and collaborative educational experience during virtual face-to-face sessions, as highlighted by Virto, N.R. & López, M.F.B. (2020). The platform allows educators to participate with students in varied activities, such as idea sketching, problem-solving, or collaborative drawing. Accessible through smartphones or laptops through a Google account, the Jamboard offers convenience and flexibility in its use.

The Google Jamboard is expected to serve as an effective alternative learning tool for TVET English educators. The groundwork of this research is through the framework of the Technology Acceptance Model (TAM) initially developed by Davis in 1989. By comprehending the TAM model and its application to Google Jamboard, educators and language learners can make informed decisions concerning the integration of this tool into their language learning practices.

When considering the application of TAM to Google Jamboard, it's important to investigate into the specific aspects of language learning that can be addressed with this tool. It presents two main factors that influence students' attitudes and behaviours toward technology: perceived usefulness and perceived ease of use. TAM proposes that the perceived ease of use and perceived usefulness of technology are key predictors of a user's attitude toward using the technology, which in turn influences their behavioural intentions and actual usage. Furthermore, TAM recommends that perceived ease of use directly influences the perceived usefulness of the technology. Within the framework of TAM, perceived usefulness is defined as the extent to which a user expects that utilizing the technology will enhance their job performance. Conversely, perceived ease of use is the degree to which a user believes that the operation of the technology will be effortless. These two elements are recognized as separate factors that affect the user's attitude toward technology use. Additionally, it is hypothesized that perceived ease of use not only affects attitude towards using the technology but also influences perceived usefulness.

Fig. 1 illustrates the research model adopted in this study, which represents the TAM, notably omitting the actual system use component. Furthermore, this model incorporates an external variable, namely the 'fun aspect,' to examine its influence on perceived usefulness and ease of use. The hypothesis suggested in this investigation suggests that if learners recognize Google Jamboard as an effective platform for interactive collaboration in language learning and believe is user-friendly, such perceptions are likely to foster positive attitudes towards its usage. These positive attitudes are expected to enhance their intention to employ Google Jamboard for language learning purposes. Ultimately, this could significantly influence Google Jamboard's adoption and effectiveness in educational environments.

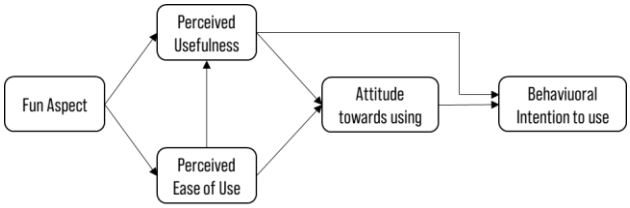

Fig. 1. Conceptual framework

The research hypotheses, developed in alignment with the TAM model as depicted in the diagram and specifically adapted for the application of Google Jamboard in a language learning context, are outlined as follows:

H_1: Perceived ease of use positively affects the perceived usefulness of Google Jamboard.

H_2: Perceived ease of use positively affects attitudes towards using Google Jamboard.

H_3: Perceived usefulness positively affects attitudes towards using Google Jamboard.

H_4: Perceived usefulness positively affects the intention to use Google Jamboard.

H_5: Attitudes towards using Google Jamboard positively affect the intention to use Google Jamboard.

H_6: Students' perceptions of the 'fun' aspect of Google Jamboard positively affect their intention to use Google Jamboard.

2. Methodology

The respondents of this study were students enrolled in the Workplace English course at Klang Community College. Questionnaires were distributed to fifty participants through an online platform. A total of 45 completed questionnaires were received.

The questionnaire is divided into three sections: Section A gathers demographic information, Section B collects data pertinent to the constructs under investigation, and Section C accumulates respondents' opinions. The instrument was adapted and refined by Davis (1993). Responses were measured on a 4-point Likert Scale, where 1 represents 'strongly disagree' and 4 signifies 'strongly agree'. Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS).

Correlation analysis was utilized to evaluate the hypotheses in this research. The interpretation of the correlation coefficients follows the guidelines provided by Hair, Black, Babin & Anderson (2010). A correlation coefficient ranging from 0.00 to 0.20 (or -0.00 to -0.20) indicates a negligible to weak relationship. Coefficients between 0.21 and 0.40 (or -0.21 to -0.40) suggest a weak positive (or negative) correlation. A moderate positive (or negative) correlation is indicated by coefficients ranging from 0.41 to 0.60 (or -0.41 to -0.60). Coefficients between 0.61 and 0.80 (or -0.61 to -0.80) denote a strong positive (or negative) correlation. Finally, a coefficient ranging from 0.81 to 1.00 (or -0.81 to -1.00) is interpreted as a very strong positive (or negative) correlation.

3. Result and Discussion

This study aims to explore the factors that influence the acceptance of Google Jamboard. The demographic data of the respondents are summarized in Table 1. The distribution of respondents by gender shows that 60% are male. Regarding device preference for accessing Google Jamboard, laptops are commonly used by 57.78% of respondents, followed by desktop computer at 31.12%, and smartphone at 11.12%. In terms of familiarity with Google Jamboard, a substantial proportion of respondents, 84.4%, reported prior usage, whereas 15.6% indicated they have never used it.

Table 1. Demographic profile

Variable		Frequency	Percentage
Gender	Male	27	60.00
	Female	18	40.00
Types of devices used to access Google Jamboard	Laptop	26	57.78
	Desktop	14	31.12
	Smartphone	5	11.12
Experience with Google Jamboard	Yes	7	84.4
	No	38	15.6

Table 2 shows the statistical measures for each variable, including the mean, standard deviation, skewness, and kurtosis. The means are relatively close, ranging from 3.3000 to 3.4444, with a collective average of 3.394, indicating that the responses were generally favourable. Standard deviations are also relatively similar across items, suggesting a consistent spread of responses. Most distributions are slightly left-skewed, indicating a tendency for responses to cluster towards the higher end of the scale, except "Behavioural Intention to Use," which has a positive kurtosis indicating heavier tails. The kurtosis values for other items suggest lighter tails than a normal distribution, indicating fewer extreme values. The 'Perception of Fun Aspect and Attitude' received the highest mean score of 3.44, while the 'Behavioural Intention to Use' had the lowest at 3.30. The closeness of the mean scores across various items within each category suggests a consistent inclination among participants toward choices that range from 'agree' to 'strongly agree'.

Table 2. Descriptive analysis

Item	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Perception Fun Aspect	3.4444	.53537	-.467	.354	-.560	.695
Perceived Usefulness	3.4111	.56447	-.378	.354	-.819	.695
Perceived Ease of Use	3.3722	.55551	-.381	.354	-.337	.695
Attitude	3.4444	.57626	-.520	.354	-.502	.695
Behavioural Intention to Use	3.3000	.48734	-.391	.354	.504	.695
Valid N (listwise)						

Table 3 presents the results of the correlation analysis conducted to evaluate the hypotheses. The hypothesis *H_1, Perceived ease of use positively affects the perceived usefulness of Google Jamboard*, the data shows a strong positive correlation between Perceived Ease of Use and Perceived Usefulness (.923, p<.01), supporting H_1. The results of this research align with the discoveries of Pothier (2021), signifying that Jamboard was successfully employed due to its association with Google and its accessibility without the necessity for account registration and facilitating broad usage. This proposes that students who find Google Jamboard easy to use also perceive it as more beneficial. This relationship emphasizes the importance of designing intuitive and user-friendly interfaces to augment perceived utility. The study highlights the significance of usability in enhancing the value of educational technology tools like Google Jamboard, thereby encouraging their efficient adoption and application.

For *H_2, Perceived ease of use positively affects attitudes towards using Google Jamboard*; revealing a strong positive correlation between Perceived Ease of Use and Attitude (.891, p<.01), which supports H_2. This finding proposes that the ease of use significantly influences students' attitudes towards Google Jamboard; more accessible platforms lead to more positive attitudes. The user-friendly interface of Google Jamboard is important to foster positive attitudes toward educational technology tools. It reassures students to integrate the platform into language learning and collaborative activities. Similar to other Google tools, it helps students communicate and collaborate effectively by offering real-time access and a multi-person editor (Khoiriyah, 2021).

For *H_3, Perceived usefulness positively affects attitudes toward using Google Jamboard*; showed the correlation between Perceived Usefulness and Attitude is very strong (.936, p<.01), providing strong support for H_3. This means that the more beneficial students find Google Jamboard, the more positive their attitude towards using it. This outcome shows that a higher perceived usefulness of Google Jamboard among students correlates with a more

positive attitude toward its usage. In alignment with Piccardo, E., Antony-Newman, M., Chen, L., & Karamifar, B. (2021), students in higher education perceived online collaborative tools as both cognitively beneficial and motivational. Additionally, positive feedback from students on Jamboard's usefulness supports the findings of Kabir et al. (2020), who argued that technology plays a vital role in sustaining engagement among students, peers, and learning materials. This highlights the critical role of perceived usefulness in determining positive attitudes towards technology.

Table 3. Correlation analysis

		Perception Fun Aspect	Perceived Usefulness	Perceived Ease of Use	Attitude	Behavioural Intention to Use
Perception Fun Aspect	Pearson Correlation	1	.956**	.845**	.929**	.811**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	45	45	45	45	45
Perceived Usefulness	Pearson Correlation	.956**	1	.923**	.936**	.838**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	45	45	45	45	45
Perceived Ease of Use	Pearson Correlation	.845**	.923**	1	.891**	.843**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	45	45	45	45	45
Attitude	Pearson Correlation	.929**	.936**	.891**	1	.890**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	45	45	45	45	45
Behavioural Intention to Use	Pearson Correlation	.811**	.838**	.843**	.890**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	45	45	45	45	45

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

For H_4, *Perceived usefulness positively affects the intention to use Google Jamboard*; a strong positive correlation between Perceived Usefulness and Behavioural Intention to Use (.838, p<.01), H_4 is supported. Studies have confirmed that students' perceptions of digital technologies pointedly impact their intentions to integrate these resources into the classroom. Favourable perceptions of digital technologies among students are associated with higher levels of involvement and motivation, leading to enhanced educational achievements (Liu et al., 2018). This relationship suggests that students who perceive Google Jamboard as useful are more likely to express an intention to use it. The implication is clear: enhancing the usefulness of Google Jamboard can directly influence students' intention to adopt and use the platform.

For H_5, *Attitudes towards using Google Jamboard positively affect the intention to use Google Jamboard;* there is a strong positive correlation between Attitude and Behavioural Intention to Use (.890, p<.01), supporting H_5. This finding proposes that students' positive attitudes towards Google Jamboard significantly predict their intention to use it, highlighting the importance of fostering positive attitudes to encourage adoption and usage. Khoiriyah (2022) observed a positive attitude towards the application despite recognizing technological issues as a barrier and provided pedagogical recommendations. Furthermore, a study by Irmayani, Masruroh, & Wulandari (2022) verified that digital tools such as Jamboard can enhance students' interest and participation in the educational process. The authors claim that digital tools empower students to take ownership of their learning, resulting in a more positive attitude towards the subject matter.

For H_6, *Students' perceptions of the 'fun' aspect of Google Jamboard positively affected their intention to use Google Jamboard; showed* a strong positive correlation between the Perception Fun Aspect and Behavioural Intention to Use (.811, p<.01), supporting H_6. This indicates that the more students perceive Google Jamboard as fun, the more likely they are to intend to use it. These results align with Ching's (2021) study, which found that respondents had positive attitudes toward Jamboard's features and customization options, thus enhancing the learning experience and leading them to perceive it as fun. This finding highlights the value of integrating engaging and enjoyable basics into educational technology to increase student engagement and acceptance rates.

The analysis provides strong empirical support for all six hypotheses, indicating that perceived ease of use, perceived usefulness, and the 'fun' aspect of Google Jamboard significantly affect students' attitudes and their intention to use the platform. These results propose that educational technologies that are easy to use, useful, and fun can suggestively enhance student engagement and willingness to accept such technologies. The finding of this study is consistence with Uke (2021) who reported its utility for many purposes, including conducting group activities, sharing ideas, and monitoring learning activities.

For developers and educators, focusing on these aspects can be significant to the successful application and utilization of educational tools like Google Jamboard. The engaging and interactive nature of Jamboard possibly enhances the learning experience, thereby increasing its perceived usefulness to learners (Davis, 1989). Therefore, incorporating Google Jamboard into language learning settings could positively influence student motivation, and engagement, and facilitate language acquisition (Ari, 2021).

4. Conclusion

This study confirms the acceptance of the hypotheses proposed. It focused on examining the use of Google Jamboard for language learning, particularly its usefulness in enhancing collaborative efforts in a language learning setting. The results, derived from the Technology Acceptance Model (TAM) questionnaire, confirmed a high level of student acceptance towards using Jamboard. The application was widely viewed as positive and user-friendly, highlighting its potential as an effective e-learning tool. This research augments understanding of the factors influencing students' readiness to engage with e-learning tools, including their perceptions of the content's playfulness and interest.

The analysis led to two significant recommendations. Firstly, for the enhancement of theoretical literature, it is important to re-evaluate the TAM with different student or user demographics. This study did not integrate actual technology usage into the model; therefore, future studies should include this factor to provide a more comprehensive assessment of TAM's effectiveness in predicting student acceptance of Google Jamboard. Additionally, the study's small sample size may present bias, signifying the need for replication of this research across other Technical and Vocational Education and Training (TVET) institutions.

In conclusion, Google Jamboard is a valuable digital resource for e-learning, addressing the needs of 21st-century education which includes fostering creativity, enhancing communication, and improving technology literacy along with information and communication technology (ICT) skills. It facilitates a student-focused approach to teaching and learning, significantly elevating the learning skill within the context of interactive collaboration in language learning environments.

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