Vol. 6, No. 1; April 2022
E-ISSN 2579-7484
Pages 52 - 66
DOI: http://dx.doi.org/10.29408/veles.v6i1.5010

VELES
Voices of English Language Education Society

The use of Google Jamboard for synchronous collaborative reading strategies: The students' acceptance

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Submission History:
Submitted: January 17, 2022
Revised: March 04, 2022
Accepted: March 08, 2022

Abstract

This study employed a mixed-method approach by administrating the Technology Acceptance Model (TAM) questionnaire and conducting in-depth interviews. TAM was used in this study to gain insight into the students' reactions to the technology used for online language learning, especially the acceptance of using *Google Jamboard* integrated with video conferencing for synchronous collaborative reading comprehension activities. Sixty-three undergraduate students were selected purposefully from the English Language Education Department who enrolled in a Literal Reading course in a full-online learning instruction. From the findings, concerning the students' acceptance, they confirmed a positive attitude toward using this application, even though some of them thought it was a new application. As a result, perceived usefulness and the perceived ease of use were rated as moderately high. Many students agreed that the online platform used was immensely useful and simple to use. Meanwhile, some of them experienced technical issues when using this platform, impeding their learning process. Additionally, some pedagogical suggestions were also further explored.

Keywords: Google jamboard, collaborative reading strategies, online learning, technology acceptance model

INTRODUCTION

Reading is considered an active language activity that requires a wide range of skills. Students should be taught reading strategies that will allow them to fully comprehend the text with minimal assistance from the teacher. Students will find the lesson more exciting and meaningful if they participate in various reading activities (Darus et al., 2019). Reading comprehension is primarily a matter of developing appropriate, efficient comprehension

strategies. Further, Collaborative Strategic Reading (CSR) is one of the strategies for reading comprehension that is implemented by teaching some strategies to students and then having them work in groups (Klingner et al., 2004). This strategy can assist students in understanding the concepts of a reading text to improve their comprehension. The CSR's ultimate goals are to improve reading comprehension and conceptual learning in ways that maximize student involvement in the learning process (Alqarni, 2015; Zagoto, 2016).

CSR teaches students specific strategies for effective reading comprehension (Alqarni, 2015; Khori & Ahmad, 2019; Lee, 2017; Susanti et al., 2020). In more detail, Klingner et al. (2004) demonstrate the advantages of CSR. CSR helps students to learn specific strategies associated with adequate reading comprehension. Those strategies, namely brainstorming and predicting (preview), monitoring understanding (click and clunk), finding the main idea (get the gist), and generating questions and reviewing key ideas (wrap up). This strategy stimulates students to have cooperative learning as well. Collaborative grouping allows students to participate in their learning activities and contribute to their understanding of the text. Hence, there are two steps in implementing CSR, including teaching the strategies and cooperative learning group activity (Mursalina, 2018). In online learning, this reading activity can be implemented by incorporating online platforms such as video conferencing, a learning management system (LMS), and many more.

Undeniably, the Covid-19 pandemic has resulted in a sudden shift from face-to-face and blended instructional formats toward fully online instruction for all students and teachers. Many online platforms enable educators and students to interact in synchronous and asynchronous modes. For example, using video conferencing such as zoom, students and teachers in this online environment are equipped with a webcam and a microphone to chat, allowing real-time interactions similar to those found in a traditional classroom setting (Alfadda & Mahdi, 2021). On the other hand, asynchronous environments provide learning materials such as audio or recorded lecture videos, handouts, compiled materials or articles, and PowerPoint presentations. This material is available at any time and from any location via a Learning Management System (LMS) or other similar channels (Perveen, 2016). Nevertheless, this digital transformation of instructional delivery came with several challenges: technical problems, learning assessment problems, motivational problems, and many more (Adedoyin & Soykan, 2020; Misirly & Ergulec, 2021; Shin & Hickey, 2020; Toquero, 2020).

Despite the benefits and the challenges, there are several online platforms to facilitate the teaching and learning process. One of which is Google. GALL (Google-assisted language learning) was first coined by Chinnery (2008) as the growing interest in online learning. He promoted this term since Google has pedagogical applications with communicative, informative, productive, and collaborative tools. Numerous studies conducted by Alim et al. (2019); Dewi et al. (2019); Godwin-Jones (2011); Harjanto & Sumarni (2019); Salam (2020); Shaharanee et al. (2016); and Sukmawati & Nensia (2019) examined the effectiveness of

using Google apps in the teaching and learning of foreign languages. Their findings demonstrated the effectiveness of these Apps in improving learners' English language skills.

Additionally, Google Docs, one of the Google Apps for Education, is a free web-based office suite that anyone can use for online learning (Amin, 2020). Documents, Presentations, Spreadsheets, Drawings, and Forms are the Google Docs tools. Yet. One of the Google features that researchers rarely report is Google Jamboard. Jamboard is Google Suite's digital whiteboard, which provides a rich collaborative experience in the online classroom. In language learning, this feature facilitates collaborative language learning activities, such as cooperative reading strategies.

The rise of interactive multimedia brought an untested assumption that if digital or online learning was 'interactive,' it was also engaging for students and thus beneficial for learning (Kennedy, 2020). There is no one-size-fits-all application for all teaching and learning processes. Hence, an investigation of the effectiveness and the acceptance of a technology used in assisting the learning process should be conducted. Several theoretical models have been proposed to investigate and explain the factors that lead users to accept, reject, or continue using new technology. One of which is the Technology Acceptance Model. This theoretical model has been widely accepted in several contexts, especially in education. Formerly, Davis (1989) introduced this model to predict the factors affecting the use of IT. According to the TAM, an individual's performance of a specific behavior is determined by their behavioral intention to perform a specific task (Al-Emran & Granić, 2021; Haghighi et al., 2019; Shaharanee et al., 2016). Two specific variables are hypothesized to be the fundamental determinants of user acceptance (perceived usefulness and ease).

Google is a well-known Web 2.0 tool that provides a plethora of interesting features and applications for teaching and learning (Shaharanee et al., 2016). The use of Google features in synchronous mode promises an effective online collaborative learning environment. In language learning, as CALL (Computer-Assisted Language Learning) gained more popularity, plenty of studies on the use of a web-based application such as google have been reported for the four integrated language skills, namely listening, speaking, reading, and writing (LSRW) (Islam, 2019; Nanthinii, 2020), communication and oral proficiency (Ebadi & Ebadijalal, 2020) and academic writing skills (Alharbi, 2020; Ebadi & Ebadijalal, 2020; Ebadi & Rahimi, 2017; Tsai, 2020). Yet, the findings from that previous research highlighted that the application's use for reading skills remains underexplored. More studies on reading skills have emerged as a promising area for future research (Amin, 2020). Considering those aforementioned studies, therefore, this study investigates the students' acceptance of using technology for English language learning, especially the use of Google Jamboard (henceforth Jamboard) for their reading class, and exploring their perceptions toward their experience in using the platform during the learning process.

METHOD

This study employed a mixed-method approach by administrating the TAM questionnaire and conducting in-depth interviews with selected participants. The obtained data consists of two aspects; the first is quantitative data, which later will be analyzed using SPSS and JSAP, and the second is qualitative data, which will be analyzed using narrative inquiry. The researchers employed the mixed method to achieve several goals, including justifying that all findings are comprehensive and well depicted (Creswell & Clark, 2018; Feilzer, 2010; Kamalodeen & Jameson-charles, 2016), ensuring that the students' experiences are well explored.

Participants

This research was conducted in the EFL context in one of the universities in East Java, Indonesia. The participants were English Language Education Department students in the second semester, of the academic year 2020/2021. Further, the participants who have joined the Literal Reading course were purposefully selected since they have used Jamboard for their reading class during the online learning. The examples are shown as follows.

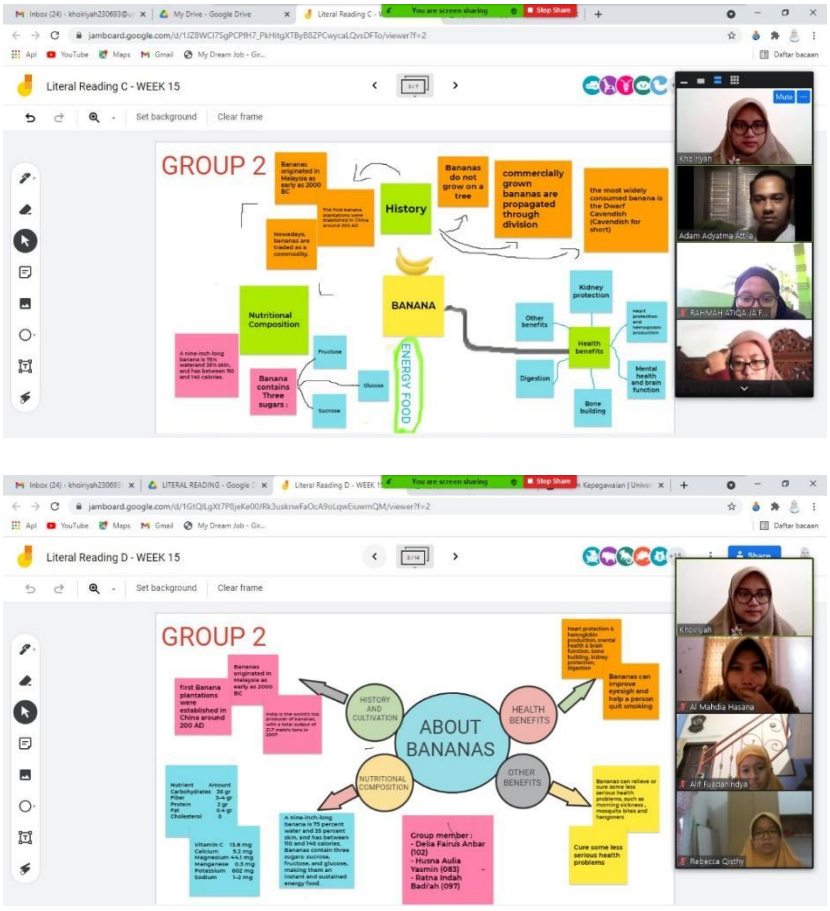

Figure 1: Synchronous reading comprehension activities using Jamboard

Instruments and data analysis

Two instruments were used in this study including the TAM questionnaire and interview guidelines. First, the questionnaire refers to TAM models (Davis, 1989). The questionnaire used in this study is an adaptation from Alfadda & Mahdi (2021); Weng et al., (2018); Yang & Wang (2019). Then, all the items were validated and adapted to the context of this study. Four criteria were used to investigate the participants' acceptance of the technology used, including perceived usefulness, perceived ease of use, attitude, and intention to use. All questionnaire items were graded in a 5-point Likert scale ranging from "strongly agree" to "strongly disagree." The detailed explanation is as follows:

Table 1. The designed TAM questionnaire

Criteria	Number of questions
Perceived usefulness	4 items
Perceived ease of use	3 items
Attitude toward using the new technology	4 items
Intention to use	4 items

The result of a close-ended questionnaire was analyzed using SPSS software for the whole items. Meanwhile, JASP software was used to identify the trend of each participant's response. Second, the interview guidelines are divided into three parts; first, the students' experience in using Jamboard; second, the students' evaluation of their experience; and last, the students' suggestions for the upcoming use of technology in their reading class. The interview transcripts were then analyzed qualitatively manually.

FINDING AND DISCUSSION

The students' acceptance toward the use of Jamboard for collaborative reading comprehension activities

To analyze the findings, the range of the score was analyzed based on the work of Ching (2021), Mean scores between 1.00 and 1.89 were classified as low; mean scores between 1.90 and 2.69 were classified as medium-low; mean scores between 2.70 and 3.49 were classified as moderate; mean scores between 3.50 and 4.29 were classified as medium-high; and mean scores between 0.30 and 5.00 were classified as high. Further explanation is elaborated as follows.

Perceived usefulness

From the four aspects explained in the following, most students showed high enthusiasm in item 2 and item 4 related to perceived usefulness. Meanwhile, they do not plan to use Jamboard more frequently, as shown in the intention to use aspects. The following table (Table 2) are the specific details of the findings.

Table 2 Perceived Usefulness

Aspect	Statements	Mean

Perceived usefulness	Jamboard is advantageous for online learning English.	3.70
	I find Jamboard useful in my reading class.	3.82
	Using Jamboard in my class helps me to work in a group effectively.	3.84
	Using Jamboard is useful for visualizing the task (making colorful mind-maps).	3.84

Based on table 2, there are four aspects included assessing the usefulness of Jamboard. In this aspect, the students evaluated that the Jamboard was helpful and practical for them to work in a group as well as worthy for visualizing their task (mean=3.84). Instead, the student felt doubtful about how effective Jambaord was towards their English online learning. In other words, Jamboard was effectively engaged in working collaboratively in a group because of its features such as creating a mind map and using colorful sticky notes. Hence, it helped students to get motivated to work collaboratively in a fun and comfortable learning environment. To be specific, for reading class, the learning activity was as interesting as group work because of the various features that could help to show and customize the learning content itself.

Perceived ease of use

Regarding perceived ease of use, the findings revealed that the mean score of each aspect was medium-high. It means that Jamboard is partially easy to use. The details are explained in the following table.

Table 3 The result of perceived ease of use

Aspect	Statements	Mean
Perceived ease of use	It is easy to become skillful at using Jamboard	3.41
	I find it easy to use Jamboard to do the task in a group synchronously.	3.69
	Using Jamboard is easier to do than the traditional one (face-to-face group work).	3.37

As shown in table 3, the highest mean in this aspect is in students' ease in applying Jamboard to work collaboratively in a group synchronously (item 2). Meanwhile, the lowest mean in this aspect is 3.37 in which the students considered that Jamboard is not that easy to use for virtual group work compared to the traditional one. It can be said that mostly the students were not familiar with the features of Jamboard. Thus, they would prefer to have a face-to-face group working.

Intention to use

Following the second aspect, which explained the perceived ease of use, the third aspects provide four items to ask students about the intention to use. In this aspect, students

were asked whether Jamboard is accepted for their learning process. The mean score from the findings mainly was categorized as low and medium-low. Table 4 elaborates the detailed aspect.

Table 4. The result of the intention to use

Aspect	Statements	Mean
Intention to use	As a student in the English department, I believe Jamboard is useful for my classes.	3.64
	I feel comfortable using Jamboard to improve my English.	3.44
	I plan to use Jamboard often.	3.05
	I think Jamboard should be used in English classes in the future.	3.60

In Table 4, the grand mean was 3.6 which led to most of the respondents agreeing with the statements for intention to use. In addition, the respondents generated a positive response about the attitude toward using the new technology of Jamboard. To be more specific, respondents commonly agreed that using this platform is good and valuable for students' collaborative reading activities (mean=3.60). Besides, the statement about the influence of Jamboard in class is also in the close numbers, as indicated by the mean of 3.59. Therefore, it can be inferred that Jamboard was immensely useful for the students. However, the students did not intend to use it frequently.

Attitude toward using the new technology

Following the third aspect which explained the intention to use, these fourth aspects provide four items to ask students about their attitude toward using the new technology. In this finding, the mean score was mostly categorized as high. The details are explained in the following table.

Table 5. The result of attitude toward using the new technology

Aspect	Statements	Mean
Attitude toward using the new technology	Using Jamboard in class is good	3.62
	Jamboard for collaborative learning in class is favorable.	3.5
	It is a positive influence for me to use Jamboard in class.	3.59
	I think it is valuable to use Jamboard for my reading class.	3.66

As shown in table 5, the items started with the statements asking if they believe that Jamboard is useful for students' classes and resulted in a high number of mean 3.64. This indicated that most students commonly agreed on the usefulness of Jamboard. The next

statements are asked about the students' comfort in using Jamboard in improving the student's English. The mean result is closest to the grand mean (3.44), showing that students generally felt comfortable using Jamboard to improve their English. Although the mean obtained from statement 2 was high, the third item was the lowest (3.05). In addition, students did not plan to use the Jamboard many times. This statement shows that few students did not intend to use Jamboard frequently in learning activities in the long term despite the positive feedback that students have felt.

Additionally, to know the trend of each participant's response concerning the acceptance of Jamboard, an analysis using JASP software was displayed in the following.

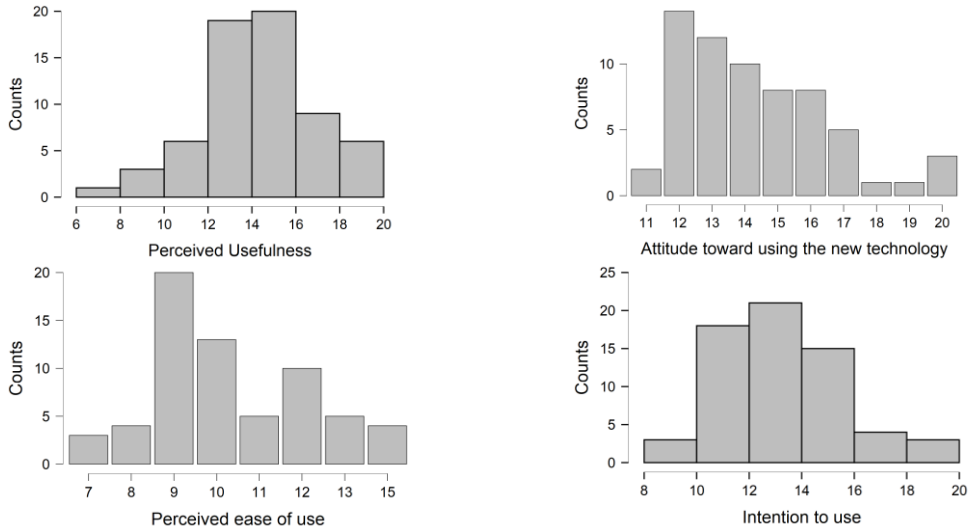

Figure 2. The overall trend of the TAM questionnaire for each participant regarding the use of Jamboard for synchronous collaborative reading activities

Overall, the students' acceptance toward the use of Jamboard for collaborative reading activities can be evaluated in figure 2. Jamboard enables students to see what their classmates noticed and easily add their annotations, allowing them to collaborate synchronously (Draucker & Siena, 2021). One of the Collaborative Strategic Reading (CSR) activities in this research is mind-mapping. The students were asked to summarize a text. Then, using Jamboard, they worked together synchronously to create their mind map. It can be concluded that most of the students felt that the use of Jamboard was sufficient to ease their reading activity and collaboration in the online learning process. These findings are also supported by the work of Zagoto (2016). In his research, the CSR strategy is immensely beneficial for students to determine the main idea and draw conclusions from a text they have read. In other words, this technology needs to be socialized and applied massively in the learning process in the classroom.

However, a contradictory statement was found when assessing the individual's positive attitude towards using the technology. Some of the students were still quite

resistant to using Jamboard. Further, there are some challenges that students and educators face to adapt to educational technology learning such as Jamboard even though the Google learning app is a model which is designed to fulfill educational needs and offers students learning and access opportunities at any given time. Thus, Sweeney, et al., (2021) stated that the timing of balancing teaching contact hours and learning outcomes while being aware of 'zoom fatigue' should be considered that sessions with increased Jamboard interactivity may take longer than face-to-face tasks. Although the students considered the technology quite useful, they needed a long time to adapt to it, especially for reading collaborative activities in synchronous mode. Most of the students provoked that they should put greater effort to understand the features technically. This condition confirmed that technical assistance is needed to increase their intention to use the application. In addition, Sweeney et al.(2021) also stated that before the platform's real use, teachers and students should spend time becoming familiar with the platform's basic functionality since the students still have a cognitive load from getting used to other online platforms. Hence, the students would not be reluctant to use Jamboard in the future.

The students' evaluations of their experience in using *Google Jamboard* for collaborative reading comprehension activities

As the beginning of research questions, the second finding was concerning students' perspectives in using Jamboard. Overall, the students considered that Jamboard was beneficial for their reading classes. Most of them felt that Google's feature is effective for group work, such as an innovative place to create a mind map and easy to use. Indeed, Jamboard provides a bunch of advantages. The following excerpts have exemplified the benefits of using Jamboard.

…Can help facilitate in online learning era #student1
Easy to use everywhere and more colorful #student3
…we can use it freely #student17
it made me easier to discuss with my group, and easier to make a mind map #student5
Google Jamboard is good for group study and discussions to make mind maps together #student9
I found it easy to working in a group using Google Jamboard especially doing it during the zoom class with my group #student13
Groupwork effectively, can draw the mind map of materials colorful and free #student15

The statements above represent the students' consideration of the benefits and flexibility in using and accessing Jamboard as learning tools in online collaborative learning. Draucker & Siena (2021) stated that Jamboard is practically useful and flexible, and students can also engage with the texts at whatever levels they feel most comfortable, with without worrying about the evaluation from their teacher or friends. It helps students by its simple but useful features for making students comfortable to use. To be specific, some students felt that Jamboard is a good and helpful tool for collaborative reading. They love to use Jamboard

to make the group work because it is easy and it provides an exciting way of learning. They also stated that it is easy to discuss and mind mapping with their groups. They considered that using Jamboard it easy to train teamwork in one job and make the group assignment effective. It is in line with the work of Pothier (2021). Based on her research, Jamboard was applicable effectively because it is a product of Google that everyone could be familiar with, yet there is no account registration required to access it. Hence, similar to other Google applications, it helps students communicate or discuss comfortably and in an interactive way since it promotes real-time access and a multi-person editor (Khoiriyah, 2021).

In addition, Jamboard also serves a variety of attractive features to make a mind map such as sticky notes, pen, text box, pictures, and many more to support the students to create a mind map as creatively as they can. Take an example, some students noted the following:

…Learning in the class is more varied, and more interactive #student20
For me Jamboard makes us understand better because of its attractive visuals #student24
The benefit is easier to visualize the task #student36

Based on the aforementioned excerpt, the students were captivated by colorful features, so the students were joining the reading activities enthusiastically. This online learning board offers eye-catching features and displays to boost the students' interest in learning. As Pothier continues to state in her research, Jamboard was very intuitive to the students. It offers a variety of tools for marking up each slide, including adding images, markers and highlighters, and sticky notes. Indeed, Jamboard facilitates the students to make creative slides and visualize the reading task such as mind mapping. Ching (2021) concludes that respondents show positivity on the acceptance of Jamboard concerning its features and the way to customize the slides leading to a fun learning process. Hence, Jamboard is suitable as a digital tool to enrich the methods of teaching to gain students' motivation in learning by its features and display.

Despite all the benefits and positive perceptions, some students also experienced many difficulties that bother them in using Jamboard for collaborative reading. Some students found it is hard to use its features to support their learning such as hard to erase and draw. Students state that using a tool to draw, make a shape box, arrange the icon and write a number in notes is difficult to do in Jamboard. Related to the difficulties in Jamboard, they stated as follows:

I feel difficult to draw lines #student15
It is difficult for me to use and arrange the icons. I am not really into it. #student16
Sometimes it is hard to draw and erase #student21

Meanwhile, other students also felt the difficulties in another aspect. Some students considered that using Jamboard would only be effective if they used their computers or laptops. Students expressed their concern about using Jamboard on their phones because it is too hard to use some features such as copy and paste, make a text box, and create mind

mapping. Also, the student often finds it difficult to access the link provided by the teacher because it is slow to open Jamboard using a phone, causing them to be late for the class. This finding shows that Jamboard is an effective tool for web-based learning, not mobile-phone-based learning. The students' statements are exemplified as follows:

> *It is too hard to use Jamboard using phone #student3*
> *if you use a handphone, it's a bit difficult to make a mind map #student29*
> *On the phone, there are things that I can't do. For example, copy and paste text and make a text box.*
> *I have to download the application first and when accessing the Jamboard link shared by the lecturer, it is often difficult to enter the link, so sometimes I am late for online classes. #student31*

In addition, students have issues in a lot of aspects in accessing Jamboard such as signal, devices, and the Jamboard features itself. Surprisingly, three students out of the total participants declared that this platform was not convenient with their learning style. They thought that using Jamboard was time-consuming and were not appropriate for them as it is stated as follows:

> *…. It is not suitable with my learning style. Using Jamboard is too childish I guess, and wasting my time" #student35*
> *I apparently don't like it since it is like an activity for primary school students #student40*
> *The activity should be more interesting, it makes me bored #student12*

Students are concerned about their inconvenience in using Jamboard as their platform for learning due to their learning style or even preference in visualizing the reading task. This activity was particularly supported by the visual learning style. Visual learning is a teaching and learning method that associates ideas, concepts, data, and other information with images (Philominraj et al., 2017). Thus, as suggested by Nasim and Mujeeba (2021) in their survey of the English learning process, the teachers are highly suggested to consider the students' learning style although the students might have a combination of learning styles including kinesthetic, auditory, visual, tactile, group, and individual. These learning styles are the most important factors that have a significant impact on learners' language performance.

CONCLUSION

This study examined the students' acceptance of the use of the Google Jamboard application for language learning, especially for collaborative reading strategies. It also explored the students' experience with the use of this platform. The result from the extended model of the TAM questionnaire concluded that the students' acceptance toward the use of Jamboard, overall, remained high. In more detail, the degree of perceived ease of use was considered moderately high. Many students confirmed that Jamboard was immensely beneficial and easy to use. Meanwhile, some of them also provoked technical problems in

using this platform, hindering their learning process. Few students showed that they were reluctant to use this platform for other courses. This finding implied that basically, the use of Jamboard can be as an alternative platform for collaborative reading activity during online learning. Nevertheless, the students need more time to get used to operating the platform and its features. As a result, the technical problems can be minimized.

Furthermore, regarding the students' evaluation of their experience, the students declared that group-working was more enjoyable while using this tool. Moreover, Jamboard provides colorful features that enhance the students' engagement during the learning process. Surprisingly, students are still primarily concerned with technical issues such as supporting devices and Internet access. For example, it is not eligible for accessing Jamboard via a Smartphone with low quality. Otherwise, a pc or laptop is more recommended than the students suggested. It will be more effective if the students get familiar with the tools before using them in online classes.

Lastly, according to the findings, students have a fair intention to use Jamboard as a learning tool. Hence, there are some pedagogical suggestions for using this platform in reading courses. First, the instructor is advised to provide sufficient platform knowledge before actual use. Second, the reading topic and time allotment should be tailored to the students' needs to avoid screen fatigue. Finally, the instructor should consider the students' learning styles, as some students appear to be put off by this platform. As a result, using this e-learning platform, particularly for collaborative learning activities, will assist students in conducting their collaboration and interaction synchronously. Due to the limitation of this study, several suggestions are addressed in future studies. First, the sample size of this study is relatively small, which may limit the generalizability of the findings. The upcoming research is suggested to reach wider participants. Second, future research is expected to examine how this Google application influences other language performance or learning outcomes in the various language learning contexts.

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