

Google Meet Usage for Continuity and Sustainability of Online Education During Pandemic

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Abstract

This research analyzes the studies on using Google Meet to conduct online classes for educational sustainability purposes. When a series of lockdowns were implemented to handle the Covid-19 pandemic, all educational institutions were physically closed. This gives rise to the issues of continuity and sustainability of education. Teachers turned to online meeting applications to connect to students and ensure teaching and learning continue despite the physical school closure. Data for this research were taken from articles published in the Scopus database, starting from 2019; the start of the pandemic on a global scale. Thematic analysis resulted in four primary themes: students' perception, teachers' perception, teachers' experience, and teaching and learning challenges. Both positive and negative points were uncovered regarding the use of Google Meet during the lockdown. This paper will help identify the benefits and challenges of Google Meet use and guide those attempting to improve their online learning experiences.

Keywords: online learning, covid-19, google meet, education, sustainability

INTRODUCTION

Covid-19, the most recent member of the coronavirus family, was discovered in Wuhan, China. (Kondziolka et al., 2020). According to the World Health Organization (WHO), more than 200 countries throughout the world were affected by the virus, resulting in over 500,000 deaths and over 12 million reported illnesses (WHO, 2020). Risks of infection include physical contact with persons who are ill and inadequate ventilation in enclosed spaces. Most governments throughout the world

have put strong measures to stop the virus from spreading within their countries. For instance, the Malaysian Ministry of Health (MoH) has begun conducting health checks at all borders and entrances to prevent the spread of the disease in Malaysia. The Malaysian government established a nationwide Movement Control Order (MCO) to strengthen this enforcement (Shah et al., 2020). Furthermore, there were disruptions in a variety of daily activities such as commerce, education, religious activities, sports, and education. As a result, schools and universities were instructed to shift their teaching modes to learning online.

With the announcement of physical lockdown imposed by many governments worldwide, the majority of educational institutions in the affected areas were ordered to be physically closed with all learning conducted in other possible ways. In order to maintain the continuity and sustainability of teaching and learning throughout the lockdown times, educators switched to online learning and related technologies (Mohamad et al., 2022). One study found that Malaysian instructors were among the most frequent users of online tools like Google Classroom (Ya Shak et al., 2020). Since the outbreak, all teachers and students now frequently use online platforms, and teachers have a variety of alternatives for moving their lessons by utilizing online learning technologies such as online learning management systems, podcasts, and online video conferencing (Hassan et al. 2014; Samuri et al., 2016; Shah Ahmad Shahrizal et al., 2022). Google Classroom and Google Meet are among the most popular and adaptable systems for teaching and learning in the world, allowing anybody with a Google account to effortlessly access laptops, personal computers, and mobile devices (Al Bashtawi & Al Bataineh, 2020).

Education is provided to students who may not be physically present in their schools via online methods such as Moodle, the World Wide Web, and virtual classrooms (Mirçe et al., 2020). There are several typical platforms for online education that enable educators to keep classes going even though the school has to be physically closed due to the pandemic. Understanding and recognizing the positives and negatives of such a platform will assist educators in developing ways for more effective course delivery, ensuring that students have a quality learning experience (Kapenieks, 2020; Roslin et al., 2022). Using technology, educators could reach out to their students in making sure learning happens either synchronously or asynchronously depending on their unique situation (Abdullah et al., 2019). Several online learning platforms could be made useful in making the teaching and learning process go smoothly. This paper investigated how Google Meet was used in educational settings during the Covid-19 pandemic. Although Google Meet has numerous advantages, it also has some drawbacks which will be discussed in this paper.

LITERATURE REVIEWS

This section attempts to describe, summarise, and critically evaluate several online meetings that are commonly used for conducting online classes, such as Google Meet, Microsoft Zoom, and Webex. These online meeting tools were also used commonly before the pandemic.

Zoom

Online learning tools are altering our world and the ways we learn. Zoom technology, a cloud-based service that delivers online meetings and webinars as well as document sharing and video conferencing, is one prominent conference room alternative. Zoom is a simple and dependable platform that offers the ability to host video and audio conferencing, collaboration, chat, and webinars on mobile devices, desktop computers, landlines, and room systems (Zoom Video Communications Inc., 2016). Additionally, Zoom is also suitable as a collaboration technology. Students can utilize the chat box to communicate with their teacher, other students, or in groups. They have access to everyone's cameras and microphones. The breakout spaces can be used by teachers to divide up their class into any number of groups, facilitating cooperative learning as well as individual study. 100 people can simultaneously participate in audio and video on Zoom. The platform is built to function successfully even in situations with limited bandwidth. With the ongoing development of the capabilities provided by Zoom, users can find fresh and inventive methods to foster a social presence in classrooms. This supports success for a variety of student populations and learning in remote locations while possibly lightening the workload of teachers (Guzacheva, 2020).

Webex

Cisco WebEx Meeting is an online program or meeting style that permits users to go through the full conference experience by focusing on conference calls through the web page. It is real-time communication that supports both video and audio as well as data exchange. Lectures or meetings can be scheduled in advance and are secure because there are always identities for attendees and flexibility in the clarity of video conferencing, which can also be applied to other applications such as classroom training, virtual services, and remote support (Chaimeebon et al., 2019). All of this can be done through the web page, by simply installing the plug-in for web browsers that connects to the internet only. In the meeting room, users can access whiteboard functions, able to switch data files in the group, share presentations and documents, share desktops, remotely access desktops, as well as have private discussion forums. In addition, WebEx is a secure online conferencing and meeting tool that allows recording for sharing on the website later (Cisco Systems Inc., 2009). The system can be accessed with various devices such as computers, smartphones, and tablets, from different operating systems such as iPhone Operating System (IOS) and Android and can support up to 100 users with each user joining up to 2 groups simultaneously.

Google Meet

Google Meet is a service for teleconferencing that allows for group video meetings, one-on-one video calls, and chat. Users of Google Meet may interact with other participants, hold group video sessions as well as exchange videos. A web browser enables the user to access Google Meet at the following link: meet.google.com. It could also be accessed through a mobile app and a few other Google applications such as Google Suite. Android and iOS devices, Chrome OS, Linux, Windows, Mac, and Google Meet are all compatible. Google Meet is accessible to everyone with a Google Account without

charge. With a meeting time limit of 60 minutes, Google Meet's free edition allows for group video conferences with up to 100 participants (Paresh, 2020). Previous research has demonstrated that Google Meet makes it possible for lecturers to conduct online classes efficiently, record the sessions for future reference, organize assignments and hold discussion forums for students online (Martinez Nunez, et al., 2016). Several authors acknowledged that courses and teaching resources can be made available to students using the same platform as the majority of students have Google accounts (Afrianto, 2016). For online learning programs to attain maximal operating capacity, especially in emergencies, it is necessary for a synchronous lesson or a mixture of asynchronous and synchronous lessons to be delivered via online resources. It should be taken into account that practical steps for student participation are used.

This would be crucial for students and instructors, especially during the COVID-19 pandemic outbreak. As a result, research was conducted to determine how instructors and students view Google Meet as a useful synchronous teaching and learning tool for online learning. Because it is simple to use, adaptable, and accessible anytime an internet connection is available, the Google Meet application has a substantial impact on students' enthusiasm for studying (Septantiningtyas et al., 2021).

As educators in the Malaysian education setting, we observed that Google Meet is commonly found to be the preferred option when compared to Zoom and Webex. Therefore, this platform is chosen to be the focus of this study. This is mainly due to its ease of use and free access that comes with having a Google email account which is widespread among teachers and students.

METHODOLOGY

Search Strategy

This study uses a systematic review approach to search and analyzes data related to Google Meet utilization in education settings during the recent global health crisis due to Covid-19. In order to respond to a specified question, a systematic literature review (SLR) detects, picks, and rigorously evaluates studies that were published (Dewey & Drahota, 2016). This review adheres to an established systematic process, and the criteria are specified before the review is undertaken. This systematic literature review followed the PRISMA approach for paper selection. Literature searching may result in many potentially eligible records that need to be assessed for inclusion against predetermined criteria, only a tiny proportion of which may eventually be included in the review. In this step, article selection was made using the Scopus database as this database is comprehensive in terms of its journal selection and we have access to the database. Search in the Scopus databases requires suitable keywords that are related to the research problem. The syntax used for search in Scopus is (TITLE-ABS-KEY (Google Meet) AND TITLE-ABS-KEY (Covid) AND TITLE-ABS-KEY (education)).

Characteristics of Selected Articles

In the process of finding related articles, some characteristics are used as a guideline when accepting or rejecting the article. Table 1 shows the characteristics used in choosing the articles.

Table 1: Summary of characteristics used in articles selection

Characteristics	Acceptance	Rejection
Year	Published during pandemic (2020 onwards)	Published before 2020
Language	English	Non-English (Other Languages)
Sample	Education	Non-education
Video Conferencing Platform	Google Meet	Not using Google Meet (Other Platforms)

RESULT

The flowchart of the overall article selection following the PRISMA approach is shown in Figure 1. 33 articles were initially found in Scopus. However, eight articles were rejected at the first level after reading the title and abstract because they were not related to the research study. The remaining 25 articles were then examined in detail to determine whether they were related to education and used the Google Meet platform in their research. Finally, only 18 articles were chosen to meet those criteria and used in this study.

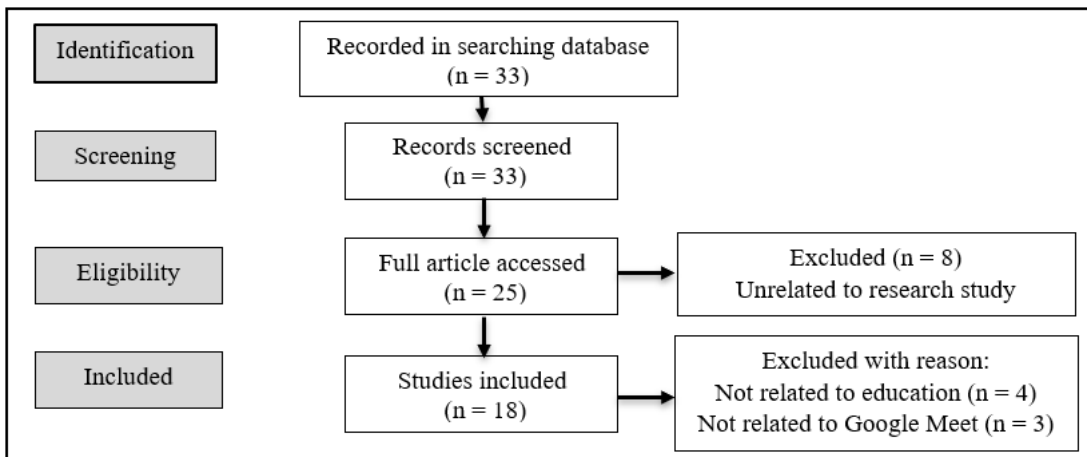


Figure 1: Flowchart of selected articles using the PRISMA approach

Thematic Analysis

Table 2 shows the selected article with a summary of the author, approaches used, type of paper, and theme identified in the article.

Table 2: Summary of selected articles

No	Author / Year	Approaches	Type of paper	Theme
1	(Lapitan et al., 2021)	Quantitative	Surveys Questionnaire	Students' Perception
2	(Al-Marroof et al., 2020)	Quantitative	Surveys Questionnaire	Students' Perception
3	(Tawafak et al., 2021)	Qualitative	Case study Observation	Teaching and Learning Challenges
4	(Hrydzhuk et al., 2021)	Qualitative	Case study	Learning Experiences
5	(Sari et al., 2021)	Qualitative	Case study Interview	Learning Experiences
6	(Rameli et al., 2020)	Quantitative	Surveys Questionnaire	Students' Perception
7	(Mulyani et al., 2021)	Qualitative	Case study Questionnaire	Students' Perception
8	(Ho et al., 2020)	Quantitative	Surveys	Students' Perception
9	(Sofyan et al., 2020)	Qualitative	Case study	Learning Experiences; Teaching and Learning Challenges
10	(Subarno et al., 2021)	Qualitative	Case study (Interview)	Teachers' Perception
11	(Pramana & Semarang, 2021)	Qualitative	Case study	Teaching and Learning Challenges
12	(Yani Achsan et al., 2021)	Quantitative	Surveys	Learning Experiences
13	(Perez-Jorge et al., 2020)	Quantitative	Case study Questionnaire	Students' Perception
14	(Irons, 2021)	Quantitative	Case study Questionnaire	Teachers' Perception
15	(Mishra et al., 2020)	Mix-Method	Case study	Learning Experiences; Students' Perception
16	(Fitria, 2020)	Qualitative	Case study	Teachers' Perception

17	(Basilaia & Kvavadze, 2020)	Qualitative	Case study	Learning Experiences
18	(Thakker et al., 2021)	Quantitative	Research paper questionnaires	Students' Perception

Year

This research was conducted for the period starting with the initial spread of Covid-19. Due to the implementation of lockdown in many countries globally (Shah et al., 2020), most education institutions' activity was conducted using an online platform. Ten related papers have been published in 2020, as indicated in Figure 2, and eight more were published in 2021.

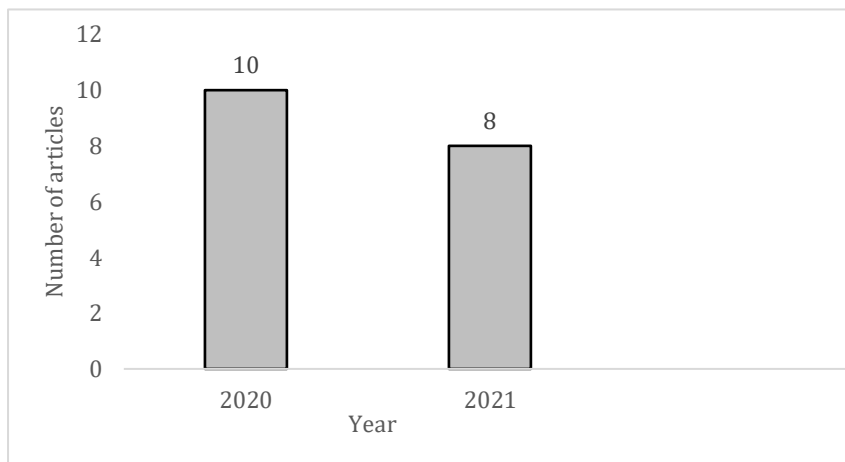


Figure 2: Year of selected articles

Method Approach

Figure 3 shows the research approaches used in the 18 selected articles. The most frequent research approach used is qualitative, with 11 articles identified as using the qualitative method. The second most used approach in this research is the quantitative method, with nine articles. The last approach found in the articles is a mix-method, which combines qualitative and quantitative with only one article.

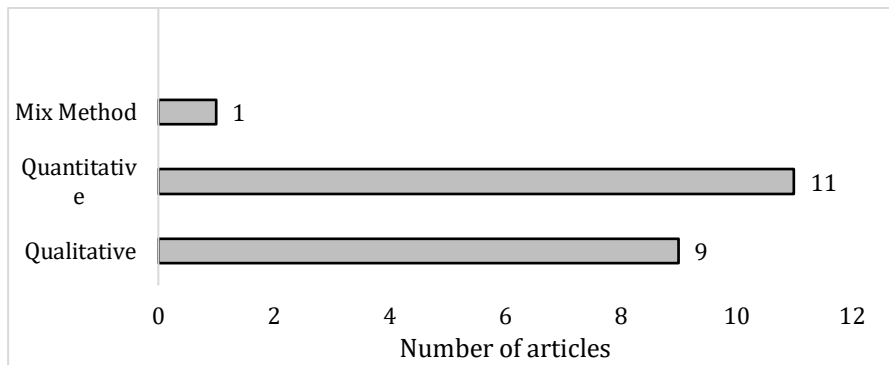


Figure 3: Research approaches used in the selected articles

DISCUSSION

This SLR identified four main themes in the articles. The first theme is the students' perception with eight articles. There are three articles each in the next two themes that study teachers' perception, and teaching and learning challenges. Lastly is the teachers' experience with six articles covering the theme. Figure 4 shows the four themes that were covered in the articles found.

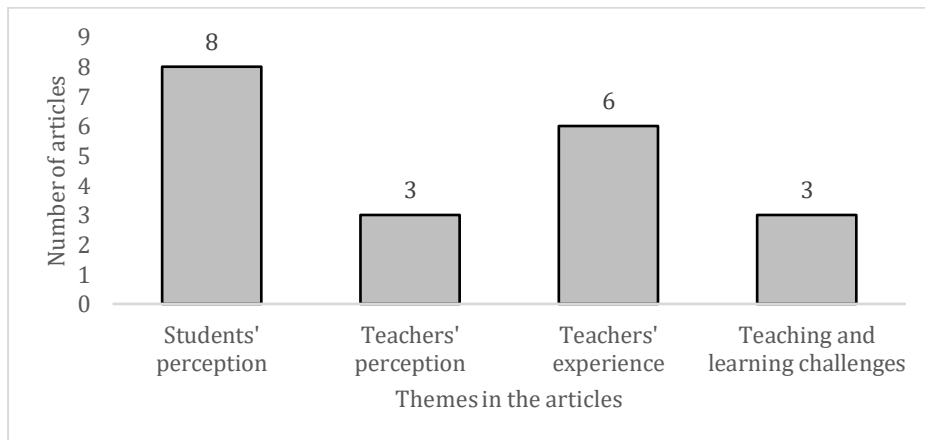


Figure 4: Themes covered in the selected articles

Students' Perceptions

Studies on students' perceptions look at students' reactions or opinions about online learning. Some articles show positive perceptions when using the Google Meet platform during the global health pandemic.

Lapitan et al. (2021) revealed that the majority of students are happy with the synchronous instruction delivered through video conferencing tools like Zoom or Google Meet. Therefore, in Chemistry lecture courses for undergraduates, this approach offers a feasible and successful online education substitute. Their results support an earlier finding by Mulyani et al. (2021), who discovered the same perception from the students in their study, revealing that 59.6% of positive response features dominated their findings.

Additionally, during the Covid-19 pandemic, the majority of students responded well to the use of online media for English language instruction. The structural model shows that computer self-efficacy positively impacts perceived ease of use for students (Ho et al., 2020). This demonstrates that Google Meet is a trusted platform for online education and is strongly advised during the global health crisis.

Perez-Jorge et al. (2020) highlighted the positive result of online teaching as a suitable tool for developing and offering tutoring within the university context. The results confirm the attractiveness of using this tool in formal and informal centers of education compared to other styles. This is in line with what Thakker et al. (2021) have said that demonstrate the accessible e-learning platforms received evaluations ranging from 2.81 to 3.46 on a five-point Likert scale. The platform that their pupils preferred the most was Google Meet. However, e-learning was suffering from technical issues as well as psychological and biological issues.

Another study by Rameli et al. (2020) suggests that success in online learning entirely depends on students' and teachers' perceptions as well as their attitudes towards online learning activities. Students' attitudes regarding online classes and education are extremely important in the education process. Students believe that anytime they join the same class with their friends, they are more personally motivated to utilize Google Meet (Al-Marouf et al., 2020). This has shown that Google Meet is a trusted platform for online education and is strongly advised during the pandemic epidemic. The online learning procedure, according to students' opinions, let them keep up to date with their courses outside of the classroom during the Covid-19 pandemic and provided another option for finishing the syllabus (Mishra et al., 2020).

Practically, this tool is more flexible and more technically user-friendly, resulting in a high degree of efficacy for the audience. Based on these eight articles covering students' perceptions, it can be summarized that Google Meet receives positive feedback from students and is suitable to be used in educational settings. This tool is more flexible and user-friendly in terms of technology, allowing it to be more effective with the audience. A critical component of interest, in addition to online learning, is how to increase student motivation. (Roberts et al., 2018).

Teachers Perception

Teacher perception is related to the process of transmitting knowledge. Teachers were found to give positive feedback about the implementation of workshop activities and reported being focused on enhancing the quality of learning using Google Meet, which are parts of the process and assessment

closely related to learning (Sari et al., 2021). Both are determinants of success in any learning program. However, various teacher professional development programs have focused on the quality improvement process for innovative learning methods and strategies only. The ability to carry out the learning process has not been followed up by using an assessment that measures both the process and the assessment products.

Basilaia & Kavadze (2020) show that instructors have revised distant learning with a fresh approach and modified course requirements to fit the new structure of their lectures. They concluded that online learning, particularly for students with special needs, can be beneficial in the post-pandemic period. Individually reviewing work and responding to criticism during extra time can improve the efficiency of group instruction. Another benefit of students working more autonomously is that they will learn new skills more quickly.

Utilizing an online learning system received both favorable and negative feedback from English instructors. A total of 77 respondents (97.5 %) agreed that the online learning system is an excellent means of helping their learners progress in their English proficiency. They noted that the online learning system is an exciting environment that students found fascinating and which increased their motivation to learn. However, a total of 2.5% of respondents (2 people) discarded or rejected (said no) the use of online learning systems due to many online learning obstacles such as limited quotas, weak network signal, and time required for preparation. In addition, not all subjects can be taught online and there are also limitations in providing or presenting learning materials. This process requires an additional process because the lecturer has to prepare for all things. For example, lecturers need to prepare learning materials and also think about internet access for themselves and their students (Fitria, 2020).

Findings indicate that various teacher professional development programs have focused on the quality improvement process for innovative learning methods and strategies only. The ability to carry out the learning process has not been followed up by using an assessment that measures both the process and the assessment products.

Teachers Experience

Teachers' experience is defined as the experiences that the teacher needs to go through in the knowledge or skill teaching process. According to Subarno et al. (2021), the outcomes show an excellent communication network of all teachers with their students as a significant aspect that has to be taken into account in lectures. These are done concurrently using online social media including Whatsapp, Google Meet, Google Classroom, and YouTube. The study showed that using Google Meet as a language learning tool for the online program was successful. However, pre-service teachers and language instructors have different levels of efficacy and efficiency. Additionally, this study shows that using Google Meet to increase student involvement in lessons can be quite successful if it is properly controlled by teachers (Ironsi, 2021).

Not all experiences that teachers have are positive; some obstacles that teachers faced are quite complex and varied. Some of them have not mastered the online learning model. Furthermore, they need more knowledge to improve their skills when conducting online teaching (Sofyan et al., 2020). As reported by Yani Achsan et al. (2021), 93.8% of teachers in Jakarta do not understand computational thinking. Interestingly, 69.4% of teachers wish to integrate computational thinking into the subjects they are responsible for even though it is not compulsory. Most teachers were trained by institutions using hands-on experience to gain more knowledge to teach students to use this platform (Mishra et al., 2020). Hrydzhuk et al. (2021) asserted that it is challenging for a teacher to organize learners in small groups (3–4 individuals) to collaborate on an online platform. It might be difficult to plan group interaction on the Classroom and Moodle platforms using online platforms like Zoom and Google Meet.

Teaching and Learning Challenges

Some challenges arise with the implementation of online learning using the Google Meet platform during the Covid-19 pandemic. First, there is an unstable signal and a weak internet connection in several locations in the country. Second, adjusting oneself (either educators or students) to online learning mode is also an obstacle in determining the type of platform used. The type of application chosen depends on some expertise in the technology to handle it. Technical problems can also be an obstacle in the learning process; including limited data quota, unsupported campus servers and applications as well as electricity that sometimes goes out unannounced (Pramana & Semarang, 2021; Sofyan et al., 2020). The study by Tawafak et al. (2021) also discusses the challenges faced in the online learning process at each stage. Each nation must therefore discreetly base its online learning on the emergence of the internet's flexibility and usefulness, as well as on the acceptability of the shift to online learning.

LIMITATIONS

This systematic review has found several limitations based on the selected articles. Research by Mulyani et al. (2021) indicated the limitations in their questionnaire, which did not cover a broad range scale of research subjects and individuals. The questionnaire relied on closed-ended questions and ignored open-ended questions, producing more information from the student's perspectives. Ho et al. (2020) indicated two limitations. First, their study only focuses on undergraduate cohorts. Second, the results were produced in the setting of a specific kind of e-learning that uses Google Meet exclusively. The study by Al-Marouf et al. (2020) was limited to only using the Google Meet application in online learning. The limited sample size of the participants was the study's main drawback, according to Ironsi (2021). Due to the difficulty of recruiting additional participants for the study during the pandemic outbreak, only 12 language facilitators and 35 educators were included in the study.

In the study conducted by Basilaia & Kvavadze (2020), they limited their scope only to home assignments. According to their report, the lower-grade kids complete their assignments more skilfully

than the upper-grade pupils. This could be because The Ministry of Education, Science, Culture, and Sport of Georgia may have recommended temporarily discontinuing the formal evaluation throughout the online education process. Perez-Jorge et al. (2020) identified some of the study's limitations, such as the use of transversal research, which longitudinal designs could overcome in order to support the associations discovered. The design of the purely self-reported instruments is where the second drawback lies. The data may contain some bias, notwithstanding assurances of the participants' confidentiality and privacy. It is necessary to create scales based on other data collection techniques, such as participant reporting or observation.

Pramana & Semarang (2021) and Fitria (2020) indicated similar limitations in facing problems related to internet access. Teachers were found not to have mastery of the internet, their internet quota is limited, the signal strength is not strong, not all students have laboratory devices, and students and their parents lack understanding of the procedures for online learning (Sofyan et al., 2020). Sari et al. (2021) mentioned that the limitation of their research is that it only focuses on supervising the rubric development progress while the online base scoring process was only done during the discussion. The limitation in Tawafak et al. (2021) study was related to the conduct of exams, where they need to ensure that all students join the online platform simultaneously and answer the exams in a proper form. This is because not all subjects are suitable for online quizzes or assessments.

CONCLUSIONS

This SLR was limited to studies undertaken during the recent global health crisis period caused by the Covid-19 virus. This study also only focuses on the Google Meet platform for online learning so it could benefit those Malaysian educators who use this platform more frequently as compared to other platforms.

It may be deduced that Google Meet was one of the most commonly utilized video conferencing services during the Covid-19 crisis. Google Meet was a popular choice for teachers to keep up with the teaching and learning process. The tools offered in Google Meet are convenient for both teachers and students. Google Meet's significant contributions to teaching and learning have been thoroughly established in prior and current studies, and many scholars consider it acceptable for online education. Although online meeting systems such as Google Meet have garnered a lot of favorable feedback and are becoming more popular among teachers, especially in a pandemic situation, the long-term sustainability of the online education system requires substantial support and funding. As a result, more research needs to be conducted to study its effectiveness, efficiency, and optimum satisfaction gained by users in online education. Significant technological and infrastructure planning and preparations are definitely required to make it successful and sustainable.

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