A Systematic Literature Review: Limitation of Video Conference

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Abstract − *The Covid-19 pandemic that has hit the world has resulted in limited human activities. Video conferencing is one solution for carrying out activities. Video conferencing helps people reduce the spread of Covid-19 and connects people. With video conferencing, people can meet without being limited by space and time. However, video conferencing still has various drawbacks, such as the inability to interact. Because we only see the video, the lack of technology due to video conferencing requires us to use technology such as computers or cell phones that a stable and fast internet network must support to ensure smooth video conferencing. In this paper, the researcher conducted a literature study to determine the limitations of video conferencing. The results show the various reasons for video conferencing restrictions. Some of these reasons are experienced by lecturers, students, or the lack of infrastructure. Students are challenged to improve their level of study due to the lack of technological support that supports only using video conferencing.*

Keywords: *Video conference; Online learning; Distance learning; Interactive video conferencing; Digital learning*

I. INTRODUCTION

A pandemic hit the world on December 31, 2019. And until now, the spread of cases has reached 486, 761 597 issues globally[1]. Although the COVID-19 pandemic hit the world around two years ago, it still affects everyone's activities until today with the endless variants that have been detected. As a result, many restrictions and health precautions must be applied when accessing public places to prevent the virus from spreading further. Unfortunately, those restrictions and precautions greatly affected offline learning, as most students must study from home to avoid spreading the virus further.

A handful of video conference services have started to surface to facilitate students who have to learn from home, such as Zoom, Microsoft Teams, Google Meet, etc. Although these video conference services seem beneficial at first glance, some students might find some difficulties and issues regarding online learning through video conference services. The standard requirements for video conferencing includes a few equipment such as camera, sound, lighting and background, other requirements include signal transmission, video codec and audio codec[31]. Considering some of the requirements needed to do a video conference, some students or even teachers might not have access to the aforementioned required equipment. The limitations of video conference services when used as an online learning medium is discussed in this paper. This study aims to see the limits of video web conference technology and its effects on the education sector with the following information.

Several studies have shown video conferencing as an activity, especially in the education sector. Study conducted by[2], show the process and effectiveness of learning using video conferencing media in the Basic Chinese course at Widya Kartika University. In this study, the researcher observed and distributed questionnaires to several students at Widya Kartika University who received Chinese language courses. This research shows that video conferencing in learning is very effective. However, although this method is very effective, it still has drawbacks, such as difficulty in teaching staff to attract students' attention. There is also limited time if you don't have a premium zoom[2]. Studies conducted by[3], explores students experiences and feelings about implementing synchronous e-learning through the system the Zoom conference. This study show that student are agreed that the traditional face-to-face still gives easier and better access from the factors of communication and materials compared to the e-learning.

This literature review aims to find out the limitations or weaknesses of Zoom conference for online learning and to understand individual views on the inconvenience of online learning.

II. METHODS

2.1. Literature Review

This literature review study aims to discover the limitations of using zoom video conferences. To achieve this goal, we collected various other literature studies through the use of keywords of video conferencing and analyzed the objectives and conclusions of the literature study. Thinking is an activity to decompose a whole into components so they can recognize the signs of parts, their relationship to each other, and their respective functions in an integrated whole[4]. After analyzing the data that has been diagnosed, the data will be collected and drawn to a conclusion.

Starting from looking for what a video conference itself is. A video conference is a data workstation that also acts as a video terminal connected to a network to provide interactive audio, video, animation, spreadsheets (worksheets), databases, telecommunications real-time, and other applications[5].

Video conferencing can be found in daily activities, such as online meetings or distance learning, using video conferencing as a substitute for face-to-face meetings. Video conferencing provides many conveniences, such as being in many places simultaneously. But video conferencing has drawbacks; for example, it is more difficult when you want to interact with people or access material in a lesson[3].

2.2. Research Question

The expected aim of using research questions is to keep the focus of this literature review.

Table 1. Table Expected Aim

ID	Research Question	Motivation
RQ1	What are the limitations faced in online learning?	To identify limitations that occur in online learning.
RQ2	Why do people not favor online learning?	To understand the view of the individual on the discomfort of online learning.

2.3. Result Finding

This literature study searched for published papers or journals to answer the existing questions. For example, with the keywords "Video Conference," "Online Learning," "Distance Learning," "Interactive Video Conferencing," and "Digital Learning."

Table 2. Result Finding

No	Database Journal	Journal	Conference	Total
1	IEEE Xplore	6	1402	1408
2.	ScienceDirect	7363	127	7490
3	SpringerLink	22993	14377	37370
4	Scopus	0	0	0
5	ACM Digital Library	-	-	107386

2.4 Inclusion and Exclusion Criteria

Table 3. Inclusion and Exclusion Criteria

		Criteria
Inclusion	I1	Articles related to the drawbacks of online learning
	I2	Articles related to the system of online learning
	I3	Articles are written in English and Indonesian.
	I4	Articles published from 2018-to 2022
	I5	Study literature reviews with similar topics
Exclusion	E1	Articles not related to online learning
	E2	Articles published before 2018
	E3	Articles with no source and references

The above criteria filter papers that can be used as research material for this literature study. So that the documents used for this study all have a relationship with this review literature study.

III. RESULT AND DISCUSSION

Based on the literature review, there are a few main limitations when using Video Conference Services as a media of Online Learning for teachers and students, as shown in the table below. Lousy internet connections and the lack of social interactions are students' most common limitation facets of Online Learning. The lack of social interaction may cause some miscommunication between students and teachers. Miscommunication may lead to the wrong scheduling of classes and unfinished assignments. In addition, miscommunication could create a conflict between teachers and students.

Aside from that, limited social interaction may cause students to interact less with each other. Some studies show that online learning may cause students to have fewer friends than they usually would in a physical school learning environment. It may cause them to lose the ability to enjoy school life and catch up with particular objects, whereas some students cannot keep up with all the materials and homework. Combine that with the fact that some students may have limited capabilities in learning through the use of technology, and this may cause problems for some students who may find it hard to get a proper education through online learning.

Table 4. Research Result

NO	Limitation	Reference
1	Less able to interact	[3] [6] [7] [8] [9] [25]
2	Less able to use technology	[10] [21] [23] [24]
3	Less able to train students' abilities in learning	[11] [12] [13] [14] [19] [15] [22]
4	Lack of supporting technology	[16] [17] [18] [19] [20] [21]
5	Lack of focus by students	[20]
6	Security Issues (Identity Theft, DDOS, spam, etc.)	[22] [23]

The table above represents the limitation found from several studies that discuss the advantages and disadvantages of Video Conference Service as a media of Online Learning. Limitations such as less able to interact, less able to use technology, less able to train students' abilities in learning, lack of supporting technology, lack of focus by students and security issues can be found throughout the papers that discuss the advantages and disadvantages of Video Conference as a media of Online Learning.

IV. CONCLUSION

This literature review shows that 85% have a positive response when learning using audio-visual media [24], using Google Classroom as an online learning solution during a pandemic [25], and using video media to improve learning outcomes in physics lessons [26]. This study also shows the advantages of using Zoom to improve students' English speaking ability [27]. Another study also found that using video conferencing as an e-learning tool is considered good in Italy [28].

However, we also found the downside of using video conferencing. We found that it is not easy to interact with each other through video conferencing because they can't meet in person. Then there is also the lack of ability to use technology, and this problem is experienced because video conferencing is a new technology[29]. The difference in socio-economic backgrounds of each student is also a factor to consider. Some students can't afford the technology required to do online learning, making it a disadvantage to using video conferences[30]. Most of the limitations of video conferences are the lack of supporting technology to enhance the student's abilities further to learn at as high a level as face-to-face in an offline environment with lecturers. The anxieties caused by the inability to use modern technology may hinder each student's ability to focus on the subject. While not as important, security issues at video conferences may prevent students and lecturers from properly interacting with each other. For further research, we suggest to find out the impact of online learning through video conference for computer science students.

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