The Zoom Meeting Application for Virtual Classroom under Security Perfective

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Abstract

The pandemic that is happening in this world greatly affects many outdoor activities. Especially in the sector of education, where all activities are carried out online. Almost all educational institutions ranging from elementary schools to lectures use video conferencing applications as a support for learning. Zoom is a web application and an application that is being used. Zoom really helps users to meet fellow users virtually. Even in a relatively young way and there is no time limit when we use a Pro account. however, this Zoom application has several security-related issues as well as audio and video displays. The security problem is a serious problem, therefore this matter is quickly handled by the Zoom. And quickly, even this application is developing very well. Then the problem Display audio and video. Sometimes, while Zooming is running, the sound volume produced is not stable. And also, there are often delays that can disrupt communication during meetings. This is certainly very important to handle because it involves the smooth running of the meeting, which certainly affects the quality of the application itself. We use the qualitative research methods such as Google Form for asking people online.

1 Introduction

Zoom is an American telecommunications company that provides long-distance video telephony services using the internet. This video conference service can be accessed for free with certain limitations. There are also various unlimited packages that can be accessed if you purchase the entry pass. The company that was founded in 2011 has become very popular during this pandemic due to the various advantages it has. Although it had caused controversy a while ago, Zoom Meetings are still widely chosen for video conferencing. The pandemic that is happening in this world greatly

affects many outdoor activities. Especially in the sector of education, where all activities are carried out online. Almost all educational institutions ranging from elementary schools to lectures use video conferencing applications as a support for learning. Zoom is one of the most widely used vicon applications and will continue to grow throughout this pandemic. Figure 1 is shown the user interface of Zoom (Anreise, 2017). Not only used in the education sector, Zoom is also widely used as for meetings, seminars, etc. This makes Zoom a very important application to have at the moment.

The development of ICT as a learning medium must be seriously considered because if it is not appropriate it can have a negative impact on the benefits of learning. One of the results of the development of ICT that teachers can use as a medium to support bold learning during a pandemic is the Enlarge application. Zoom can be categorized as an online learning media that can be a type of teaching and learning that allows it to be delivered teaching materials to students using internet media. zoom is an online learning media application in the form of an application that features remote conferencing with video conferencing, online chat, online meetings and can also be collaborated with mobile.

Pandemic learning using online learning was chosen to plan the learning process according to current conditions where face-to-face learning cannot be carried out. Implementation of online learning able to support and facilitate the learning process at school. The online learning process aims to make teaching and learning activities easier and smoother and can increase interest and results in the teaching and learning process. Online learning aims to provide quality learning facilities in a network (online) that are intact and open to reach a wider and wider range of enthusiasts.

There are several learning media used to support online learning activities, including the Zoom application, Google Classroom, Google Form, WhatsApp Group and learning videos. According to the homeroom teacher in supporting online learning for students, he uses one of the ICT developments, namely the Zoom application. In addition, online learning is also combined with WhatsApp groups and self-made learning videos. The teacher stated that the zoom application used in online learning today is very beneficial for both teachers and students.

Figure 1: Zoom User Interface (Anreise, 2017)

2 Concepts and Theories

The concept used in this zoom application is an online application that allows users to conduct online meetings in realtime and can be accessed with many kinds of devices. Figure 2 is shown the zoom features. One of the reasons why many use zoom is the ease of doing a join that can be done only by pressing the link that is shared or by entering the meeting code (Brown, 2017). You can start meetings through your calendar system with one touch or use voice commands.

There are several types of video conferencing and zoom applications are Desktop Video Conferencing System types. Due to the large number of applications that adopt the Desktop Video Conferencing System, Zoom adds many special features to the application The video conferencing system is brought directly to your personal computer while still having a full motion conference with features such as virtual background, cloud based video conferencing, and data protection.

Figure 2: The Zoom Features

3 Survey Literature

There is limited literature on the use of video and conference technology for online qualitative data collection, also known as Voice over Internet Protocol (VoIP)-mediated technologies (e.g., Skype, FaceTime) (Brown, 2017)(Archibald, *et al*., 2019). These online approaches are also considered along with other internet communication technologies, such as instant messaging services (IM) or online focus groups, when addressed (Archibald, *et al*., 2019)(Lawson, *et al*., 2010). The VoIP technologies differ greatly from asynchronous methods of online interviewing (e.g., e-mail, IM, OFGs) and synchronous Internet methods (e.g., chat rooms) because they allow real-time contact involving sound, video, and sometimes written text. VoIP technologies vary significantly from asynchronous methods (e.g., communication that happens at various times). The Zoom Security Features are presented in Figure 3. Therefore, these technologies mimic the characteristics of face-to-face interviews (i.e. the ability to transmit and respond to verbal and nonverbal indications) while presenting specific benefits, challenges and considerations (Archibald, *et al*., 2019).

Their use in educational contexts has gradually increased as new capabilities for video communication have evolved. The use of videoconferencing for a wide range of learning purposes is now established in many schools, initially located in higher education. While there is a substantial body of literature documenting the experience of video conferencing using conventional pedagogies,

much less the contextual factors that contribute to productive learning outcomes and creative video conferencing uses have been released.

Zoom is a cloud-based, interactive video conferencing service that provides features such as online meetings, community messaging services and secure session recording (Zoom Video Communications Inc., 2016).

As with comparable platforms such as Skype, Zoom provides the ability to connect via screen, tablet, or mobile device with geographically distributed people in real time. However, Zoom has a range of additional benefits that increase its potential research usefulness, unlike many other VoIP technologies. The Zoom Video Capture Peripheral is shown in figure 4.

The ability to safely record and store sessions without recourse to third-party applications is a key benefit of Zoom. In research where the security of highly sensitive data is needed, this function is especially important. Other essential security features include user-specific authentication, real-time meeting encryption, and the ability to back up recordings to remote online server ('cloud') networks or local drives, which can then be safely shared for collaboration purposes (Zoom Video Communications, n.d.).

Base on the above surveys, it can be concluded that the review is about the technology used by zoom guided by Voice over Internet Protocol (VOIP) Technology as in Skype and Facetime. Figure 5 is shown with the Zoom most preferred features (Zoom Video Communications, n.d.).

While in the second survey we cite a source created in 2010 where video conferencing was just introduced as a support for learning devoted to higher education. We can see now that video conferencing is used not only for higher education but from the lowest education level even for office meetings.

In the third survey, a review of the survey said that zoom was present as a cloud based videoconferencing service that offered many features that became their competitiveness over applications with other VOIP technology. Please take look on Figure 6 for Zoom usage pattern. The main advantages of this app are its functionality that, due to the importance of security for confidential information, allow users to securely record and store sessions without recourse to third-party applications.
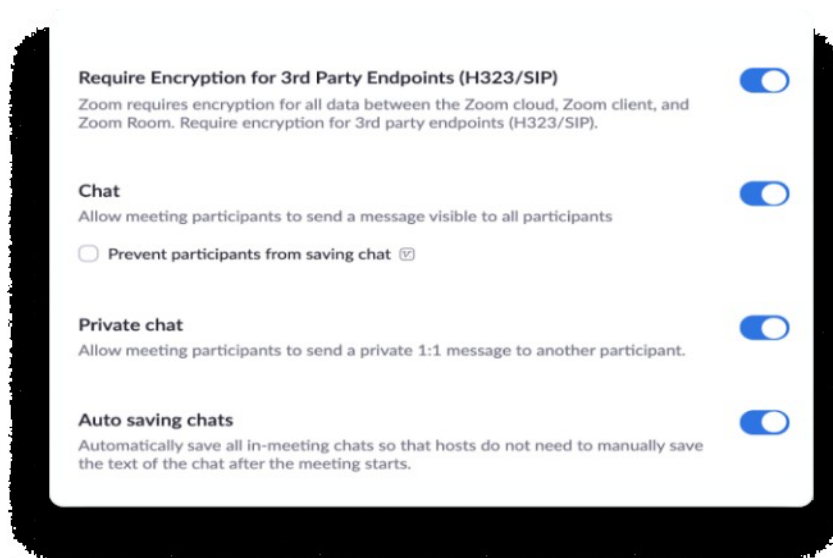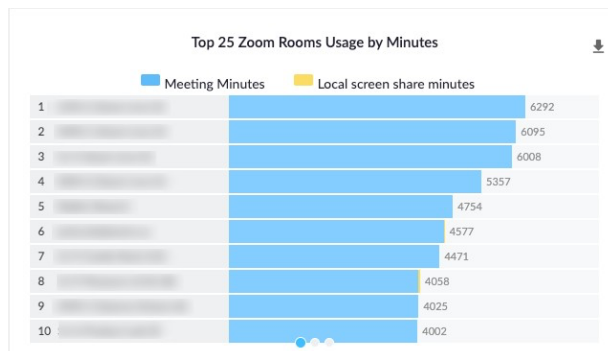

Figure 3: Features of Zoom Protection (Lawson, et al., 2010)

Figure 4: Zoom Peripheral Capturing Footage (Lawson, et al., 2010)

Figure 5: The most desired features of Zoom (Zoom Video Communications, n.d.)

4 Discussion

Zoom is a Video Conference applications that is being used by people around the world, where this Application work as their learning support, etc. Through this time in this pandemic, Zoom is one of the most widely used applications for meeting, Study, etc. Zoom lets you record freely and securely when you're in a meeting session and store sessions without recourse to third-party software. As it said, Zoom is a video conferencing tools that helps people to hold meeting or other activities that requires communications. But Zoom does has some weaknesses in their system which is Meeting Duration and lack quality of video and audio. Please take look on Figure 7 with the modelling of Google trends data on Zoom.

1. Meeting Duration

As you know, when you're holding a meeting using Zoom, there's a limited time duration. Which mean you'll need to create a new meeting session after its duration is over. which makes zoom having

a weakness because if we're going to compare with another video conferencing tools like 'Teams'. 'Teams' doesn't has limited duration when holding a meeting. Although Zoom provide unlimited duration of meeting through payment. But, it still does make a weakness for Zoom. It is better if there is no limited duration in Zoom which makes Zoom more comparabale to Teams.

2. Lack quality of Audio and Video

For example, When we're holding a meeting session, there will be a small delay and lack quality in communications, which means unstable and delay audio income, Low framerate of Video sharing as shown on Figure 8.
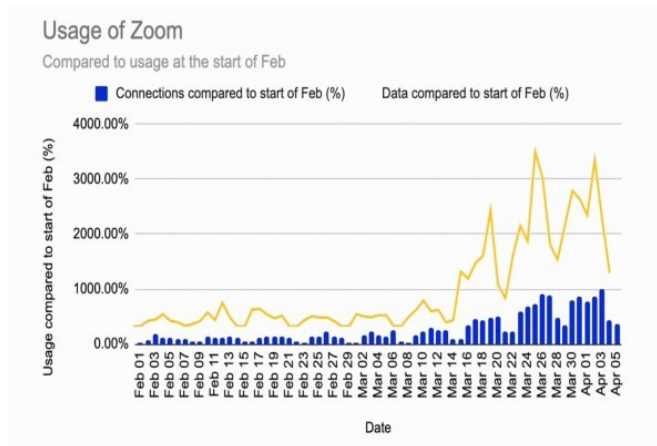

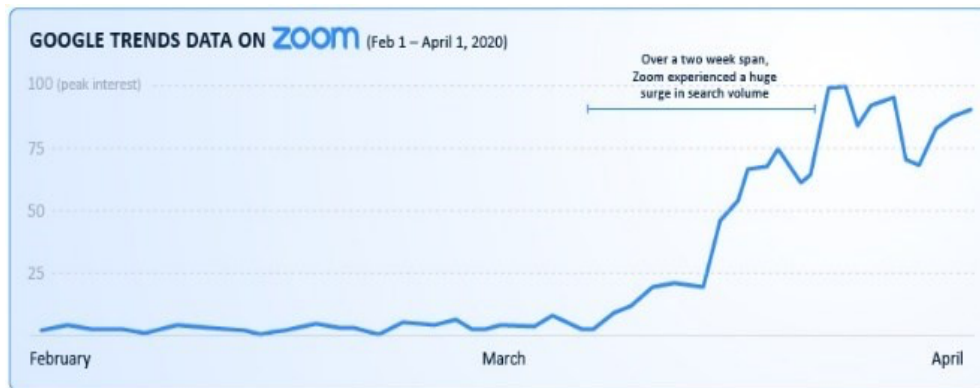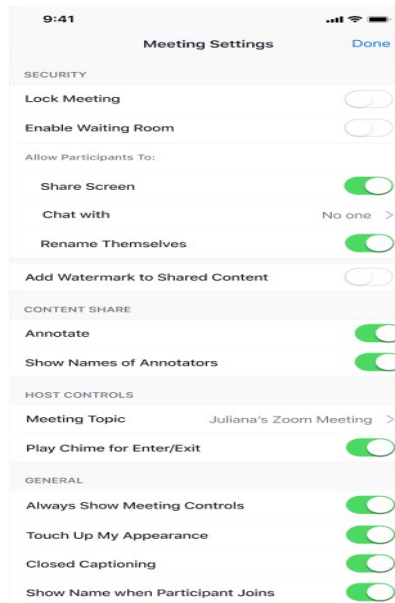**Figure 6:** The Usage of Zoom (Zoom Help Center., n.d.)

Figure 7: The modelling of Google trends data on Zoom (Lawson, et al., 2010)

Figure 8: The meeting settings (Zoom Help Center., n.d.)

4.1   Unstable and Delay Audio Income

When you're holding a meeting, audio that is coming from other participants mic are usually delayed for a couple seconds and sometimes its audio became unstable like sometimes its sound will become smaller or unhearable and some word will be unheard. It is a big problem, where it will make your meeting having a obstacles that cause the ongoing meeting process delayed.

Zoom is better if there are some fixes to their audio system, where they stabilizing audio system for all Zoom users. So, they could easily hold their meeting without obstacles in it.

4.2   Lack Quality of Video

When you're holding a meeting session, there are times where you're going to presentate your material or show some videos to your participants, but Zoom right here have a slightly problem which is Video quality. What i mean by video quality is Framerate of shared video through share screen. When you're sharing material or sharing video through share screen, meeting participants usually experiencing low frame rate while watching its share screen. This also cause obstacle while holding a meeting where the participants can't watch the video or material properly. So, thorugh this problem if we can solve it by improving share screen function where participants can watch share screen's videos without experiencing Low Frame Rate. Then, it will make meeting session will be held smoothly without any obstacles.

5   Conclusion

This Video Conferencing tools named 'Zoom' Does provide good services to its users where you can record its meeting session and stored it, and hold a meeting with many participants. However, it

does have some weakness which is the first one, Meeting duration, there are limited duration when you're holding a meeting, if Zoom has unlimited duration of meeting sessions it would be a advantages for zoom. And another one, Lack quality of video and audio, its quality of audio when holding a meeting session sometimes is unstable, video sharing giving a low frame rate. If Zoom could improve its quality of video and audio, it will make Zoom a better video conferencing tools than any other tools, it will improve its perfomance highly.

6 Acknowledgement

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