Video Conference as a Mode of Communication in the Pandemic Era

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ABSTRACT

This COVID-19 Pandemic era forces us to change our communication patterns and media. Changes also occur in the world of workers. This forces industry players to adapt to long-distance communication patterns with videoconferencing media in response to the company's need to establish communication between its employees. The necessity to use Videoconference media in organizing meetings or briefings when working from home brings several opportunities and challenges. Employees are required to work in accordance with their functions during this Pandemic. They must be able to utilize the media in order to maintain productivity for the sake of the company's operational sustainability. Failure to utilize this media will have a bad impact, one of which is the company's operational stability. This paper explores how employees can benefit from Videoconference communication media. This paper explains the requirements that make employees take advantage of this media. To achieve this goal, comparative research methods are used in this paper. The author compares two Videoconferencing applications that have different features and functions. The result is that we can use videoconference to maintain relationships between employees, establish communication well for the benefit of the company by using this tool carefully and correctly. Videoconferencing will function well if users create a good flow and discussion rules to serve the needs of employees. Some of the features available in the Videoconference application can also make discussions interesting.

Keywords: CMC, video conference, TAM

1. INTRODUCTION

One of the important differences between humans and other creatures in this world is the development of needs, including information which is a very important need and therefore communication is a necessity. New discoveries in communication technology are increasingly advanced and continue to compete as needs develop. Ease of use and speed are demands that change human communication patterns to become more flexible and modern.

One type of communication affected by the development of communication technology is mass communication. Previously the definition of mass communication according to Bittner [1], is "mass communication is messages communicated through a mass medium to a large number of people." But now, it is more interactive and easier with the existence of technology, for example the video conference.

On the other hand, the pandemic of Coronavirus Disease 2019 (or known as COVID-19), having occurred globally since the end of the first quarter of 2020, has made major changes in the community of the world. Various new terms are becoming popular in everyday communication. Telecommunication makes anyone even in rural areas easily familiarize themselves with terms usually popular in medical circle only. Among others, there are some popular terms: pandemics, lockdowns, social distancing, PSBB (large scale social restriction), independent isolation, masks and face shields, APD (personal protective equipment), rapid test, corona virus (COVID-19),

swab test, and PCR (Polymerase Chain Reaction), also the terms ODP, PDP and OTG which since July 2020 have been replaced by the Ministry of Health with new operational terms, such as suspect, probable, and confirm. The popular terms also include follow-up terms in other fields such as videoconferencing, zoom meetings, webinars and others.

Various policies have been issued by each country to break the chain of spreading of the COVID-19 virus. Some of the policies carried out included Italy's lockdown, lockdown on a regional scale carried out by China and Spain, the Movement Control Order (MCO) carried out by Malaysia, and the implementation of the PSBB (large scale social restriction) carried out by Indonesia. Such thing makes interaction between communities limited. Likewise, various community activities, such as work, study and worship were also affected. Another consequence, the economy is slowing down.

People have to find ways to continue their activities and fulfil their needs to establish communication with others, be it for work, study, or worship. From the various available media, videoconference is the best option in establishing communication to support daily activities, including gathering activities during religious holidays, communication activities between communities, and even social gatherings are currently being carried out using videoconference media. Therefore, this study seeks to gain an understanding of how the community uses videoconference during this pandemic.

The mobile phone industry in Indonesia is currently growing rapidly. Based on data from We Are Social in 2020 [2], as many as 338.2 million cell phones circulating in the

community, or around 124% of Indonesia's population of around 270 million people. Compared to 2019, the growth in cell phone use was 4.6% or an increase of around 15 million new cell phone uses. This is higher than the growth of Indonesia's population itself, which is only 1.1% or around 2.9 million people. Based on these data, it can be concluded that the mobile phone industry in Indonesia is very good.

Internet access speed in Indonesia is also getting better from year to year. We Are Social data in 2020 shows that with an average internet speed of 13.83Mbps, the need for information and communication via the internet can be well met. The internet speed has increased by 31% from 2019. This has made people more optimal in using their cell phones to support their daily activities, including access to video conferences via cell phones.

If previously video conference was used for formal communication such as company meetings, the COVID-19 pandemic has made the use of video conference wider and in informal situations. Therefore, the question underlying this research is 'how can people use video conferencing communication modes to establish communication in this pandemic era?' This research will also compare the features and services of different video conferencing platforms, namely Zoom Video Conference and Microsoft Teams.

2. LITERATURE REVIEW

2.1. Computer-Mediated Theory

The invention of the Internet in the development of information technology has changed the pattern of humans communicating with one another. Previously, humans communicated face to face with each other, nowadays it is more common to use the internet. Communication activities via the internet are known as computer-mediated communication or what is often abbreviated as CMC. December [3] states that computer-mediated communication is a process of human interaction via computer that involves someone who is in a special context with a specific purpose and purpose. CMC usually involves the exchange of information in text, audio, and video formats that are managed by the use of computers and communication technology.

In this digital era, CMC is not only limited to communication using computers, but can also be accessed through various programs or applications on cell phones, such as email, social media, and other message sharing applications. Sheizaf Rafaeli and John E. Newhagen [4] stated that there are five characteristics of computer- mediated communication (CMC):

1. Multimedia
   Related to multimedia, where text, sound, images, animation, video, virtually reality motion codes, even smells can also be communicated via the internet to be communicated with other people.
2. Packet Switching
   Packet switching is one more innovation enabling interaction to occur in technology that mediates communication. The existence of technology as a medium in communicating is very possible to be able to capture and even emphasize interactivity between individuals or groups that are participants.
3. Interactivity
   Communication via the internet provides an opportunity of

interactivity. Interactivity is an attraction for the success or failure of a website because it is related to the dependence on a group that always uses computers as a medium for these individuals to communicate with other individuals who are members of this group.
4. Synchronicity
   Messages from the sender will be received by the receiver in real time. This is what makes CMC a tool making feedback easier and faster.
5. Hypertextuality
   Computers make communication run linear or hyper textual. Here communication using computer as the medium will enable the messages on the web on the internet directly to reach the people accessing it.

Rogers [5] said that CMC also has special characteristics, including:
1. Mass-produced messages are distributed en masse too. The audience who are consumers also actively produces messages.
2. CMC allows those who produce messages to gain knowledge about message recipients.
3. CMC marks a process of demassification, which is a special message that individuals who are in a large audience can send. This pattern shows the difference between CMC and mass media. This process shows that the mass communication control system has moved from producing messages to media consumers.
4. Interactivity is an important quality in a communication system, where communication behavior is expected to be more accurate, effective and satisfying because participants can actively be involved in the communication process.
5. Feedback in the CMC is limited because there are no signs of nonverbal communication which can be observed in face-to-face communication such as intonation, expression or body language. Feedback can be delivered quickly or slowly depending on the CMC medium that is used.
6. CMC media provides signs of close nonverbal communication with written communication, such as the shape, size and color of letters.
7. CMC is asynchronous, it has the ability to send and receive messages at different times. Participants do not need to be at the same time. This communication pattern overcomes the problem of time often becoming a barrier in the communication process.
8. The use of CMC has an equal position because it has an ability of sending and receiving messages so that the control of communication flow is unidirectional.
9. The low privacy of CMC users.

In CMC, the communication process occurs dynamically. This means that the interpersonal communication process occurring can make individuals both senders and receivers, and can provide feedback directly. It's just that in CMC there are deficiencies in the communication process, namely the inability of channelling various forms of non verbal communication such as eye contact, body language, facial expressions, and others.

2.2. Technology Acceptance Model

The Technology Acceptance Model (TAM) was proposed by Davis [6] in his research attempting to explain the potential behavior of users' intentions in using technological innovations. TAM involves two main predictors: the perceived ease of use, perceived usefulness and the dependent variable in the form of intention behavior. TAM has come to be one of the most widely used models in information systems [7].

The acceptance of technology in TAM begins with intention which is a significant determinant of actual system use, and that behavioral intention is determined by two salient beliefs: the usefulness and the ease of using a particular system. Perceived usefulness is how an individual feel that in using a certain system, it will increase productivity. Ease of use is the degree to which an individual feels confident that using a particular system will be free of physical and mental effort. In TAM, individual beliefs determine attitudes toward system use, and in turn, attitudes develop the intention to use them. This intention influences the actual use of technology decisions. That causation is widely studied and accepted [8].

TAM is a development of theory reasoned action [9],[10] which has been applied to predict and explain user behavior in various fields. According to theory reasoned action, a person's performance of behavior is determined by the intention of his behavior to perform this behavior, and behavioral intention is determined jointly by one's attitudes and subjective norms regarding the behavior concerned [9]. Referring to the logic of the theory, Davis [6] states that TAM explores the factors influencing the intention to use information or communication technology, and shows a causal relationship between two key benefit variables along with ease of use and attitudes to use, behavioral intention, and adoption of actual systems and usage [11].

TAM research is considered as the most popular and powerful one to explain and predict individual acceptance to various scenarios and contexts of computerized technology-based organizations. TAM has a hypothesis that perceived usefulness and ease of use determine the attitude to system or technology use, whereas individual attitudes influence behavioral intentions to use technology, further leading to the users of the latest technology [12].

User acceptance is a factor determining the success or failure of a technology accepted in the organization [6]. This is because the decision of each individual or organization, whether or not to use a communication technology, can have an impact on the productivity and performance of the individual or organization itself. Lack of acceptance of a user can be a factor in the failure of the adoption of communication technology in the organization which makes the goal of using the system in the organization unachieved [13].

To anticipate declination against the use of a new technology, it is necessary to have stages in making decisions. The stages are:
1. External variables: the belief that usage considers various external variables (such as their respective abilities, technology types, tasks, and situational constraints) to evaluate the consequences of using them. Their overall evaluation is reflected in their beliefs about a utility (the extent to which using it will improve their performance), and ease of use (the degree to which using it will be load-free);
2. After beliefs emerge attitudes: users' beliefs about the consequences of using drive their attitudes (or affections) towards the behavior;

3. The next stage is attitude intention: users feel favorable or unfavorable to using technology to what extent they intend to use it;
4. Intention to use: users intend to use technology whether or not they are actually going to use it [14]
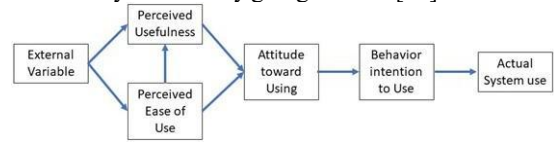

Figure 1: The TAM theory from Davis [15] quoted by Burton-Jones & Hubona [14]

Based on the picture above, there are main elements of TAM theory mentioned by Davis [6], [13]:
1. Perceived Usefulness
   Perceived usefulness is the people's level of trust that using technology can improve its performance. Thus, users have confidence that technology is very useful for efficiency and effectiveness in carrying out their work.
2. Perceived Ease of Use
   Perceived ease of use is the user's perception of how much effort is needed to use technology. In other words, the more effort a person puts into using technology, the more difficult it will be to use it. Conversely, the less effort a person has in using technology, the easier it is to use the technology.
3. Attitude Towards Use
   Perceived benefits and perceived ease of use would lead one to have an attitude. The attitude in question is a form of acceptance or rejection of a technology.
4. Behavioral Intention to Use
   Interest in use is a person's attitude to continue to use or encourage others to want to use a system or technology. This attitude is very much influenced by a person's attitude towards a system or technology. TAM theory reveals that through the construct of perceived usefulness and the construct of perceived ease of use, it can predict the acceptance of communication technology [16].

2.3. Video Conference

Video Conference is a data workstation which also acts as a video terminal connected to the network to provide interactive audio, video, animation, spreadsheets, databases, real time telecommunication and other applications [17].

According to Gough [18], video conferencing can be divided into 3 types:
1. Personal Video Conferencing, involves two people interacting with each other. In Personal Videoconferencing, there is communication in the form of audio and video between two people interacting, as in instant messaging software.
2. Business Video Conferencing, has the same features as personal video conferencing plus several features such as: the ability to communicate is not only for two people but can be more, features for sharing files (file sharing), ability to make presentations, whiteboard facilities and other features. Business video conferencing requires a higher cost than personal video conferencing, as a result of the facilities provided.
3. Web Video Conferencing is video calls contained in web pages, usually web video conferencing is used in seminars

that use the web, where viewers can view videos sent by seminar speakers. Hence, web video conferencing is a one-way communication.

A simple video conferencing takes the form of sound transmission and static images. Meanwhile the most complex can be a moving video display accompanied by high-quality audio. For transmission in the form of static images, usually the images sent will be compressed first, for example into the Joint Photographic Expert Group (JPEG) format. To display a moving video, a technique called streaming is used.

2.4. Video Conference in Computer Mediated Theory

Thurlow [19] argues that CMC has been around since computers were first created in the early 1960s, when people started communicating using computers. Basically, CMC can be defined as human communication with the help of computer technology or through computer-based media. Thurlow said that CMC has many definitions, one of which is John December's [3], stating that "Computer Mediated Communications is a process of human communication via computers, involving people, situated in particular contexts, engaging in processes to shape media for a variety of purposes".

Furthermore, Thurlow [19] states that in CMC, there are 3 basic concepts. The first is communication. In his opinion, communication is a dynamic process. The meaning of the message lies not only in the words, but also in the context of the message. As such, the meaning can always change, from one place to another, from one individual to another, from time to time. Communication is a process of exchanging messages; meaning that in the communication process, there is a negotiation of meaning. The meaning of communication will continue to change depending on the individual's interpretation in the process of mutual influence. Apart from that, communication also has more than one function at one time. Communication can be used to provide information, seek information, control, influence, and so on all at once. So that in communication there are content and relationship dimensions that are inseparable. Thus, according to Thurlow, in communication in relation to CMC, there are three basic concepts: expressing identity, forming and maintaining relationships, and the last building community.

In CMC, the communication system consists of two types: synchronous and asynchronous systems. Synchronous system is a system application that is directly or real- time; when users send messages and interact simultaneously, for example chatting and video conferencing. Meanwhile, an asynchronous system is an application system that is indirectly or has a time span, so that users can send messages and interacts according to the time of each user; e.g. email.

Mirabito & Morgenstern [20] say that video conferencing is broadly under the discussion of a teleconference, which is defined as an electronic meeting of two or more places. The discussion of teleconferences includes audio conferencing, namely interactive meetings via voice, and video conferencing, when exchanging information via video is used. Another type of meeting is computer conference media, which is an extension of the use of internet system to exchange information through various media on the network.

Video conferencing is divided into two types: one-way and two-way. In a one-way videoconferencing, all interactions and communication processes occur in only one direction through voice and video systems. Meanwhile, in a two-way videoconferencing, participants can see, hear, and interact with one another through cameras, monitors, microphones and loudspeakers.

3. METHODS

This research was conducted using a comparative research method. Comparative research in communication and media studies is conventionally understood as the contrast between different macro-level units, such as world regions, countries, sub-national regions, social spheres, language areas and cultural thickening, at one or more points in time. There is a synthesis by Esser and Hanitzch [21] concluding that comparative communication research involves a comparison between at least two macro-level cases (system, culture, market, or its sub-elements) which are at least on the object.
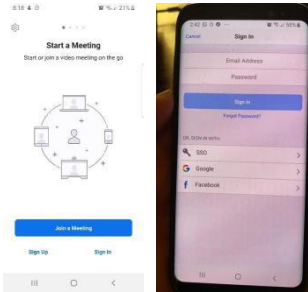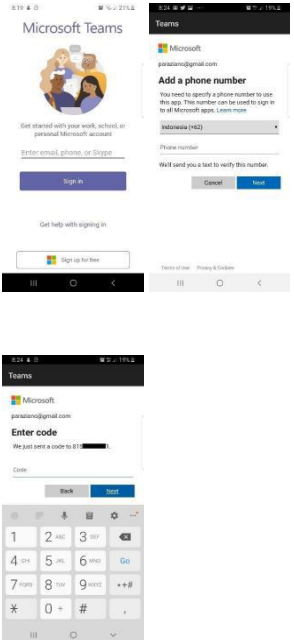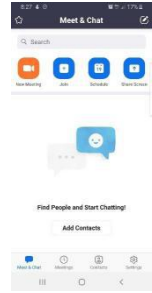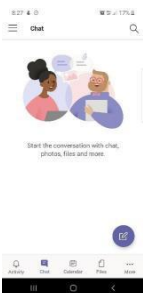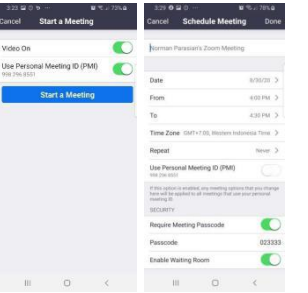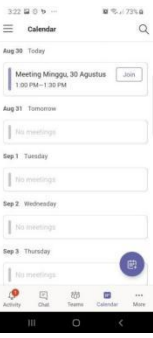
The type of comparative research method used here is descriptive comparative one using similarities in subject matters. Thus, the application similarities and the different objectives of application will be described. It will also explain the public's acceptance of Video Conference system during the current pandemic.

This research focuses on two different video conference service applications, often used by the public to support their activities, currently hindered by various policies in overcoming the spread of the COVID- 19 virus. The applications studied are Zoom and Microsoft Teams. These two applications were chosen because, considering the author's observation, these two applications are often used to communicate in both work world and in communicating in general.

4. RESULTS AND DISCUSSIONS

In the process of comparing Zoom with Microsoft Teams, several differences were found and interesting to explore. Early in the process, we can find that using Zoom is more informal, whereas Microsoft Teams is formal. The results of analysis are more or less like the table below shows

Table 1: Perceived Ease of Use

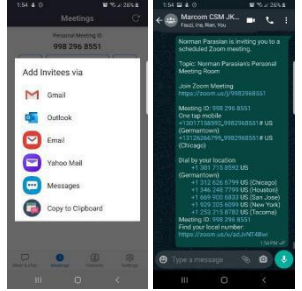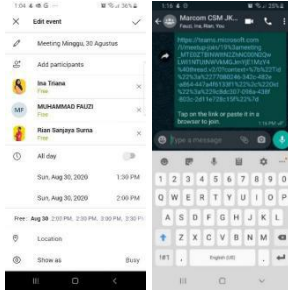| Category	Zoom	Microsoft Teams	Description
Account Login			In the login process for these two service applications, there are significant differences. In the Zoom application, we can find that we can access the application by logging in to a Google account, Facebook, or the Zoom account itself. In fact, we can immediately join a certain meeting room without having to log in, just submit the meeting ID and fill in our display name during the meeting. Meanwhile, for Ms Teams, we log in with the email we registered first. In addition, we are also given an authentication code that is sent to our cell phone number. This is quite difficult for people who don't want to include their mobile number on Ms Teams' account. It means, the Ms Teams application cannot be accessed if the user's cell phone number is not included.
Application front			On the first front of the application, the Zoom display is quite clear and easy to understand, because it contains features that can be accessed directly by the user. Meanwhile, the appearance of Ms Teams does not contain clear information; this can be seen from the absence of information regarding the features of creating a new meeting room, or joining existing ones, such as the one in the Zoom application.
Creating a Meeting Room			In creating a meeting room, Zoom is easier because it has two main features. The first is Start Meeting, which can be used to start a meeting room directly. And the second is the meeting schedule, which can be used to create a meeting agenda at a specified time. Meanwhile, in Ms Teams, we have to schedule meeting rooms on the calendar. This is not flexible for users who want to schedule a meeting in person.

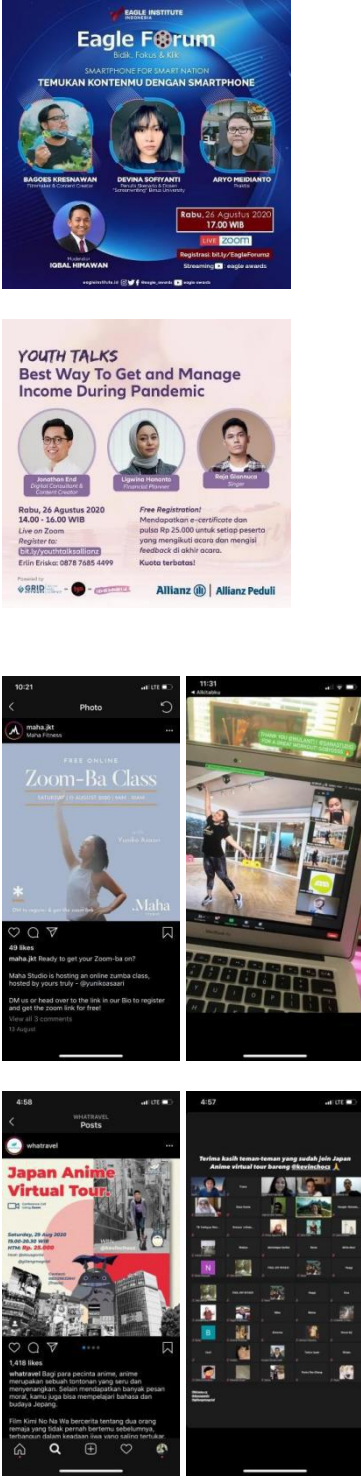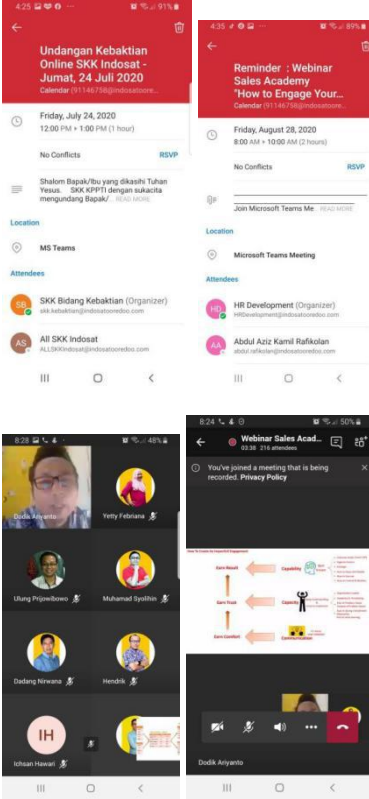| Category	Zoom	Microsoft Teams	Description
Invite Member			In the stage of inviting meeting members, Zoom can use email, SMS, or messages that can be copied and pasted into the existing Messenger application. As for the Ms Teams application, members will be invited via email as the main way of inviting members. Then the meeting room link can be distributed to members if the meeting room has been formed and there are members who have joined.

Table 2: Perceived Usefulness

Category	Zoom	Microsoft Teams	Description
Video Conferencing Share feature during meetings			In relation the main feature, namely videoconferencing, there are not so many differences. Both applications are quite comfortable for users to access. However, the Zoom application has several views that can be adjusted, such as providing 2 views, a proportional view for all participants, and a larger view for the speaking participant. In the share feature in meeting rooms, the Zoom application has more features than the Ms Teams application. Zoom can share Microsoft OneDrive, Google Drive, Box, Photo, Document, Web Url data, Bookmarks, Screen, as well as whiteboards commonly used for drawing and writing. Meanwhile, in Ms Teams there are only 4 sharing features: Photo, Video, Powerpoint or presentation material, and screen or screen display.

Table 3: Interest in Using System

Category	Zoom	Microsoft Teams	Description
The use of videoconferencing in daily activities			Zoom and Ms Teams have significant differences in their use. Zoom is often used for informal activities. Via Zoom, various informal activities previously done offline, can be done virtually now from the user's respective places. It ranges from learning webinars, talk shows, virtual sports, to virtual tours. As for Ms Teams, it is more often used for formal activities, and these activities are usually held by the company where the users work. It ranges form from training activities between employees, routine meetings, to places of worship in companies.

These two applications are the ones often used during this pandemic era. However, in their operation, these two applications are also distinguished in terms of their limited features. The Zoom application at the beginning of registration can be accessed free of charge, but the meeting duration is limited to 40 minutes, if it exceeds the duration, the meeting will stop automatically so the user has to create a new meeting room. Meanwhile, for Ms Teams, there are no restrictions on meeting duration from the start.

The next difference is the issue of data security that hit Zoom in the early days of the COVID-19 pandemic. Privacy security issues arise as Zoom users increase, making some people reluctant to use Zoom due to the fear of their data being misused by others. Therefore, Zoom finally responded to this issue by increasing security in a new system update, thereby reducing doubts among the Zoom users.

These two applications of videoconferencing have different features. We will find it is very easy to use the Zoom application to conduct videoconferences, without the difficulty to log in. Meanwhile, when we log into the MS Teams application, we will find it difficult as it has more steps of verification.

The verification system when logging in is actually adjusted to the user's email. In some companies, they collaborate with Microsoft, so they use their corporate email account to login and access features of videoconferencing through Ms Teams. As for Zoom, users can freely register any email account they have to access the feature of videoconferencing of the Zoom application; even users can access the meeting room by simply entering the Meeting ID code. This makes it easy but on the other hand also has a high risk related to user data privacy, due to the low level of verification applied.

During this pandemic, various service applications of videoconferencing seem to be an option for people to carry out activities usually involving other people. Zoom can make good use of this, with its various features usable and learnable to its users. Ms Teams also basically has features not much different from Zoom, but it is quite difficult to use, e.g. how to create a meeting room, how to invite other users, and so on. This makes Ms Teams less attractive to some people, and is a advantage for Zoom, which can be used more easily than Ms Teams.

In the process of inviting other users to join the meeting room, Zoom makes it easier to do this by creating a Meeting ID that can be completed with a password. This makes it easier for users to join, so they don't have to log in to enter the meeting room. As for Ms Teams, invitations must be sent via Email first. The meeting room link can be shared if the invitee has entered the meeting room.

The use of videoconferencing during this pandemic has increased drastically. This can be seen from the use of each application to support daily activities. The Zoom application is used not only for meetings, but also for non- formal activities. There are communities using Zoom as a means of exercising Zumba. There are also webinars and talk shows on various topics, some are holding online trials and graduations, and even the latest is the virtual tour, which creates the sensation of having a vacation to various interesting tourist destinations in virtual way together with other users. Likewise, Ms Teams is mostly used by companies, but sometimes it is also used for activities outside of meetings, such as employee worship facilities, and several talk shows organized by the company.

This makes the video conference application, either Zoom or Ms Teams, a way of expressing identity, with its various uses. This is because the community has no other option to communicate during the COVID-19 pandemic as effectively and efficiently as this. Various webinars and talkshow classes are held to spend leisure time during this lockdown period.

The Zoom and Ms Teams apps can also be a means of establishing and maintaining relationships during this pandemic. A wide range of work activities from office meetings to gathering activities during holidays are also carried out virtually using videoconferencing media. This makes one person seem to be very close to another and not far away from each other, even though in a virtual way.

Various communities have started to emerge along with the increasing use of videoconferencing. This is due to the increasing use of videoconferencing in webinars or talk shows, thus forming a new community, with same interest in a topic. For example, a community of Zumba lovers begins to use the Zoom application to do Zumba together. There is also a virtual travel community from Whatravel who do travelling virtually with the Zoom application.

The TAM concept in this study is supported by research conducted by Townsend et al. (2008) stating that the technology experience is highly moderated by the user's social experience, and that it is evaluated not only by how easy it is to use, but also by how well it fulfils a complex and abstract network of social expectations. Therefore, with this pandemic period, many people hope that the use of videoconferencing can meet their needs in communicating. Videoconferencing service providers must also be able to compete with various creative ideas in meeting community needs.

Considering the observations conducted by the authors, it can be concluded that in its use, the Videoconference application can be relied upon to support activities during this pandemic. Several features differentiate between each application. For people who want convenience and flexibility to be used in various informal activities, Zoom is more reliable. We can log in easily without entering email or verifying cell phone numbers, and share with other users. Indeed, there is a limited duration of access if we subscribe to it for free, but that is not a problem because users can re-create the meeting room if it is stopped when it has reached the duration limit, or subscribe to premium features not limited to the duration of use. This is confirmed with a research conducted by Archibald et al [23] finding that simplification and ease of use by users are the keys to choose Zoom rather than other applications.

Meanwhile, for Ms Teams, login verification is quite difficult for users. Thus, its use is limited in society. Tsai [22] states that Ms Teams is used by organizations and companies that work with Microsoft. Its use has become a little limited, only around the activities of the company or organization, as it is difficult to use in general. However, Tsai [22] predicts that the use of MS Teams will increase over time. In his research, he predicts that by the end of 2020, there will be 41% of companies using MS Teams globally. However, looking at the COVID-19 pandemic situation occurring this year, it is possible that the number of users of MS Teams is greater than the initial prediction.

5. CONCLUSION

In the end, the COVID-19 pandemic has indirectly forced the public to use video conferencing services. Various community activities, whether work, study, or worship, are recommended to be carried out from home, so that the use of videoconferencing is the right choice to support these activities.

It also makes the process of accepting a system faster. Unconsciously, we are getting closer to the world supported fully by communication technology.

These two videoconference applications provide convenience amid COVID-19 pandemic situation. Each of them has its own advantages and disadvantages as aforementioned. The level of acceptance to technology must be studied further.

However, through this research, the author tries to provide an initial description of the measurement indicators in technology acceptance that must be considered when this research development.

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