

LIMITATIONS OF VIDEO CONFERENCING AND ITS EFFECTS ON SOCIETY

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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RISE OF VIDEO CONFERENCING DURING COVID-19 PANDEMIC

Starting in the year 2020, COVID-19 has caused a great decrease in the amount of in-person contact. Events are being moved virtual, and the use of video conferencing and video calls has increased greatly. Online video conferencing applications including Zoom, Microsoft Teams, and Google Hangouts, have seen great growth in usage, since the beginning of the COVID-19 pandemic. Zoom in particular grew from averaging 56,000 daily downloads in January of 2020, to averaging 2.13 million daily downloads in March of 2020 (Iqbal, 2020). These applications, however, are limiting in several ways. One key limiting factor is that eye contact, a key aspect of nonverbal communication, is not accessible to users.

The STS topic will conduct research and analysis of data on the technology of video conferencing and its effects on society using the Actor-Network Framework (Law and Callon, 1988). This research will be tightly-coupled with the technical project by providing the motivation for the technical project. The technical project will attempt to come up with a revolutionary solution to one issue, lack of eye contact, discussed in the STS topic.

OUTBREAK OF PANDEMIC CAUSES SOCIETY TO TAKE ACTION

There was a spectrum of responses and steps that impacted countries and societies took to combat the disease. Quarantine and lockdowns were imposed by governments to control the spread of the virus. Citizens and residents were forced to stay inside their homes unless they had to leave for essential reasons such as grocery shopping. Some governments also used testing to measure and control the spread of the virus. Some tests were sold, some were free and some were even mandatory. Social distancing protocols were released by different organizations. People were instructed to wear masks and to remain at least six feet apart from others. Vaccines have been developed and are being distributed to different populations. The United States of

America is one of the countries that handled the spread of COVID-19 relatively poorly. Within the United States, there are people who have different views on social distancing. Some are completely refusing to wear masks.

THE INCREASED USAGE OF VIDEO CONFERENCING

Throughout quarantine, video conferencing has exploded in usage. Meetings and classes have moved online, and video calling has never been more widely used. However, it is critical to realize that online video calling will not go away anytime soon. Even though it may seem that video conferencing came from the COVID-19 pandemic, it would be foolish to say that it will disappear when the pandemic is over. Video conferencing existed before and will continue to exist because of the society we are in. People have been able to form connections and maintain relationships using the internet before quarantine and will continue to do so after. Because of the digitalization of society, the number of meetings done through video conferencing will continue to grow.

VIRTUALIZATION OF SOCIETY

COVID-19 has resulted in a significant reduction in in-person interaction. Since the beginning of the COVID-19 pandemic, online video conferencing software such as Zoom, Microsoft Teams, and Google Hangouts have seen a major rise in use. Workers began working from home, and students began to study online. Zoom's daily downloads increased from 56,000 in January 2020 to 2.13 million in March (Iqbal, 2020). However, these implementations are constrained in a number of ways. One significant stumbling block is that users are unable to make eye contact, which is an essential part of nonverbal communication.

It is generally accepted that nonverbal communication, including tone of voice and body language, is far more important than verbal communication. While it is impossible to assign a quantitative value that accurately describes the qualitative importance of nonverbal communication, a study at UCLA created the 7% rule. The study claimed that only 7% of communication is verbal, and that 38% was through tone of voice, and 55% was body language (Strain, 2020). Eye contact is a crucial part of nonverbal communication. One way to tell if someone is lying is to look at their eyes. If the person is lying, that person will likely break eye contact, or make too much eye contact (Brown, 2012). Eye contact is also critical to detect the other person's level of interest and engagement (Segal, 2019). Eye contact is very necessary for conversations because of the amount of body language it can communicate. It is one of the most important factors that make conversations more intimate when they are in-person. Murphy (2020, np) concludes in her article "Why Zoom is terrible," by saying that "no facial cues are better than faulty ones." Since there are so many things that hinder communication in video calls, Murphy proposes that everyone should just stick to regular phone calls.

OBJECTIVE

The objective of this research project will be to discover and bring light to the culture that exists because of the way video conferencing currently exists. Understanding the effects of video conferencing on meetings will make way for seeing how it influences society.

Using the Actor-Network Theory (ANT) model, we will analyze the dynamics within video conferencing. This model is a form of analyzing technologies where each actor has changing relationships with other actors within a given network (Law and Callon, 1988). One main actor would be the hosts, which can be teachers, team leaders, speakers, and friends that

take initiative. Another category of actors is the participants, which include students, team members, and other friends. Other actors that influence the technology of video conferencing include the company or institution that decides on using the software, the family, or the people who share the WiFi of the users, as well as the engineers and developers who created the software. This network can be visualized in Figure 1.

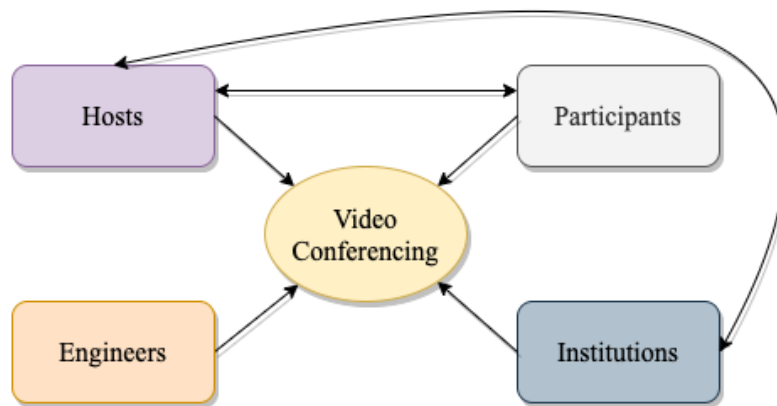


Figure 1: Visual Representation of the Video Conferencing Network: The interactions between different actors within the Video Conferencing network (Chen, 2020).

The hope is that in using ANT, we can bring a deeper understanding to the technology of video conferencing and its effects on society. This further understanding will allow for finding different ways to improve on the technology and help bring more answers to the question of how the technology of video conferencing influenced society, and how it will continue to influence society.

EFFECTS OF THE TECHNOLOGY OF VIDEO CONFERENCING ON SOCIETY

Because of the virtualization of society, there can be interruptions and distractions that hinder learning and productivity. There is more potential for distractions, especially if the professor can't see you. There can be less motivation to attend class and also less motivation to participate in class. While these are some negative effects of technology, different groups of actors are impacted differently. A summary of the distractions can be visualized in Figure 2.

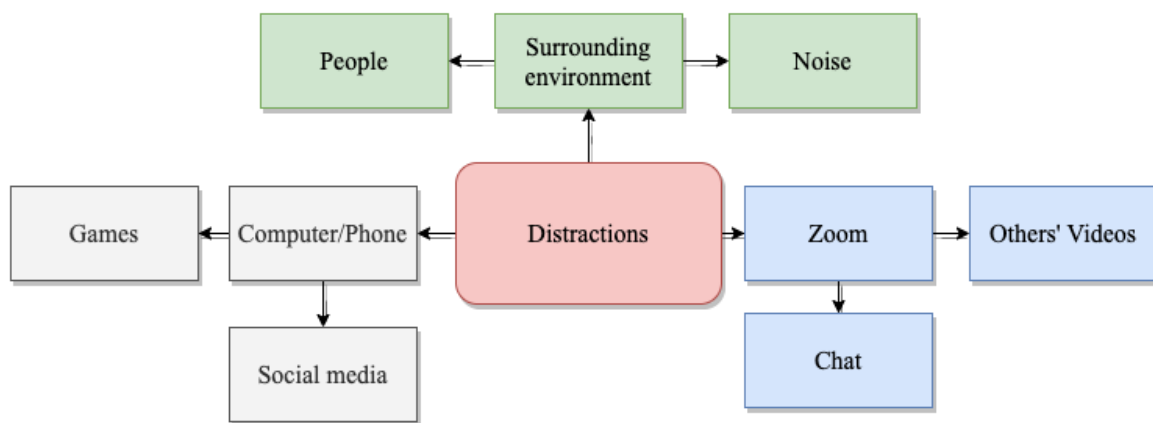


Figure 2: Visual Representation of the Hindrances to virtual learning (Chen, 2020)

In order to see a clearer picture of some specific effects of online learning, we shall look into the English-language learners (E.L.L.) who are students learning English in New York City. In her news article, “With remote learning, a 12-year-old knows her English is slipping away” author Juliana Kim describes the struggles that Taniya Ria, a 12-year-old immigrant from Bangladesh, faces during quarantine. Kim received a Bachelor’s degree in Urban Studies/Affairs from Barnard College. In recent years, she has been writing for local journals, such as The Baltimore Sun and ProPublica. In May of 2020, she began to write for The New York Times.

Kim published the article “With remote learning, a 12-year-old knows her English is slipping away” on December 29, 2020. This was about a year into the COVID-19 pandemic, after students, professors, and employees have well adjusted to new work from home conditions as well as virtual events. Universities completed a full semester of classes online and people with jobs worked almost a year from home. Kim is writing to readers of The New York Times to raise awareness about the struggles of English-language learners (E.L.L.) She writes to an audience that has been stuck at home and understands the struggle of using video conferencing for communication.

Kim begins with a story about a specific immigrant girl who is learning and taking classes on an iPhone from her tiny apartment. She covers how the learning of E.L.L. students is greatly hindered due to a lack of communication through nonverbal gestures. She also states how language learning is significantly hindered by a lack of interaction between classmates. Because of difficulties and challenges in learning, E.L.L. students experienced a significant decrease in attendance. One example Kim gave was how a frozen iPhone prevented Taniya from participating in class, resulting in poor grades. Kim’s main point is that ever since learning started becoming virtual, E.L.L students have taken a great hit in terms of success in school. Kim appeals to the readers’ feelings by giving specific stories of struggling students. One student’s parent simply wished for her son to learn enough English so that he could make friends. Kim commends New York City’s Department of Education for instructing school districts to make sure that E.L.L. students can return to in-person school as soon as possible. Kim does not expect readers to take action and is only making sure that they realize that life is especially hard for the 142,000 E.L.L students in New York City.

DIFFICULTIES OF VIDEO CONFERENCING

In her news article, “Why Zoom is Terrible,” author Kate Murphy (2020) briefly discusses the different reasons why calling with video can actually be harmful to communication. Murphy is the author of a well-known book titled *You’re Not Listening*. She is also an experienced journalist, having written articles for *New York Times*, *The Economist*, *Agence France-Presse*, and *Texas Monthly*. Murphy published the article “Why Zoom is Terrible” on April 29th, 2020. This was a few months into the COVID-19 pandemic when countries including the US started locking down. Universities moved classes online and people with jobs worked from home. Because of this shift to working and learning remotely, Zoom’s usage and download numbers exploded. However, the reason why Zoom grew in popularity was not that people liked it, it was because it was just one option of a very few. Murphy is writing to readers of the *New York Times* to get across the several limitations of zoom, and video conferencing in general. She writes to an audience that has been stuck at home and understands the issues and likely has experienced them first hand.

Murphy mentions several issues that cause disconnect among video callers. Zoom video and audio can often become out of sync, especially when the WiFi is shared with other family members also in Zoom calls. This prevents us from properly performing facial mimicry, a subconscious behavior that allows people to feel more connected and familiar with one another (Murphy, 2020).

Another issue is that people often look at their own faces instead of the faces of other people. People can be self-conscious of how they appear on camera and may spend the whole call paying attention to their own image, and the lighting on their face. Because there is no eye contact, video callers can feel a lack of trust, since avoiding eye contact is often a sign of lying.

Murphy concludes in her article by saying that “no facial cues are better than faulty ones” (Murphy, 2020, np). She suggests that the reader should stick to voice-only calling because of the strong connection as well as the more accurate communication. When a person's sense is taken away, that person’s other senses become heightened. In the same way, if the faulty video is taken away, people can become more focused on listening to the other person speak.

While Murphy does argue a solid point, she does not consider a longer-term solution - making video calls more realistic. She points out several flaws but instead of facing them, she tries to avoid them. As technology gets better and faster, there will be smoother video and audio. There can be an option to disable the other person's ability to see their own face. There is software being developed by several companies to simulate eye contact. While users should be aware of the shortcomings of Zoom, they can be informed of what they can expect in the future.

TECHNOLOGICAL INNOVATION AS A SOLUTION

In her news article, “The pandemic was great for Zoom. What happens when there's a vaccine?” author Rani Molla discusses the future of video conferencing after briefly summarizing its growth and evolution in the past year. Molla received a Master of Science in Digital Media from Columbia University. After graduating, she worked for notable companies, such as The Wall Street Journal as a visual journalist. Molla published the article “The pandemic was great for Zoom. What happens when there's a vaccine?,” on December 4, 2020. This was about a year into the COVID-19 pandemic, after students, professors, and employees have well adjusted to new work from home conditions as well as virtual events. Universities completed a full semester of classes online and people with jobs worked almost a year from home. Because of this shift to working and learning remotely, Zoom’s usage and download

numbers exploded. However, the reason why Zoom grew in popularity was not that people liked it, it was because it was just one option of a very few. Molla is writing to readers of Vox to give an overview of the virtualization of society as well as what to expect in the future. She writes to an audience that has been stuck at home and understands the issues and likely has experienced them first hand.

Molla begins by giving an overview of how Zoom usage has grown over the past year. Zoom was originally used by tech companies as software for meetings. However, as time passed and the COVID-19 Pandemic hit, the number of Zoom users grew enormously as events and meetings switched to becoming virtual. Molla then brings in competitors of Zoom, including companies like Google, Microsoft, and Cisco. Molla mentions how these existing large companies already have a large user base and that they would all compete for the same pool of users and customers. It is these companies that will try to optimize their video conferencing product to secure the users for their platforms. One thing that Molla points out is that all the different platforms offer attractive background changers and video filters that alter the appearance of your face. Finally, Molla addresses the fact that vaccines are being released and that eventually, in-person meetings will resume. However, Molla claims that “video will likely forevermore be a component of meetings, if not a dire necessity.” Instead, it will continue on and evolve and improve in video quality, integration of hybrid meetings, and augmented reality. While Molla is not extremely specific on exactly what the future of video conferencing will look like, she seems confident that it will stick around for the long run.

The goal of Molla’s article is to shed light on how Zoom, as well as other video conferencing software, can change due to society becoming less virtual due to the production and distribution of vaccines. Overall, the reader can see the influence that society puts on the

technology of video conferencing, as well as how this influence could change in the future. Currently, society is using breakout rooms, filters, and backgrounds. In the future, there will be more demand for better quality, and potentially augmented reality and tools that will streamline integration of in-person and virtual meetings.

As different companies compete and refine their technology, society also plays a role in adapting to using it. Small group discussions now are so easy to make happen due to the breakout rooms provided by zoom. Students, professors, managers, and employees are required to adapt to new lifestyles, and society has to learn to use new technology in order to continue functioning.

Technology is also improving to create better influences on society. Zoom and other forms of video conferencing have created additional filters and backgrounds. Implementation of eye contact in one on one video calls (Schukin, D, 2019) has also helped create and more intimate and personal form of communication.

FUTURE RESEARCH AND ANALYSIS

In conclusion, it can be said that the introduction of virtual meetings and video conferencing to a significant portion of our lives has negatively impacted the less fortunate and underprivileged populations in society. At the same time, improvements are being made to the technology as it continues to facilitate communication during these trying times. Future analysis can be done on the effects of this video conferencing on privileged groups within society.

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