



Why Web-Conferencing Matters: Rescuing Education in the Time of COVID-19 Pandemic Crisis

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Physical interaction between humans has steadily decreased over the past year as a result of the COVID-19 pandemic. As a result, the adoption of e-conferencing has seen a huge increase in conducting business globally and technologically mediated interactions are now the order of the day—the new normal. The virtualization of meetings promotes collaboration among colleagues, target markets, associates, teachers, and students working towards the organization's objectives. Using web conferencing in learning meets the primary goal of both educators and students. It facilitates the creation of the best learning environment for students and aids in the realization of a balance between life and teaching duties for educators. Through web conferencing, higher learning institutions have the ability to capitalize on the available technologies to expand access to instructors online while also creating new experiences in the teaching and learning environment. The elimination of the need to travel for students' field trips has also been realized due to technological advances, and virtual tours have replaced these trips. A descriptive approach is adopted for the study, and it relies on information from peer-reviewed journals. Drawing from the literature review, the study first identifies web-conferencing in various facets of education. Secondly, it discusses web-conferencing adoption and its influence on teaching and learning. Third, a discussion on the importance and benefits as well as disadvantages of web-conferencing is outlined. Fourth, the study exemplifies two web-conferencing platforms: Zoom and Google Meet. The study further discusses the future of adopting web-conferencing in education.

Keywords: web-conferencing, education, COVID-19, pandemic, crisis

OPEN ACCESS

Edited by:

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Specialty section:

This article was submitted to
Educational Psychology,
a section of the journal
Frontiers in Education

Received: 23 August 2021

Accepted: 13 September 2021

Published: 22 September 2021

Citation:

Adipat S (2021) Why Web-Conferencing Matters: Rescuing Education in the Time of COVID-19 Pandemic Crisis. *Front. Educ.* 6:752522. doi: 10.3389/feduc.2021.752522

INTRODUCTION

According to Loch and Reushle (2008), web conferencing is the process of carrying out live training, meetings, presentations, collaborations, or launching new products and services through the Internet. Web conferencing platforms are computer software that enables users to have a meeting virtually or communicate through the Internet. These software programs are divided into two main categories: those that only offer audio and video communication and those that offer audio, video and features like document sharing, access to the desktop, and editing during the virtual meeting. Web conferencing disseminates real-time video content across a wide group and is a collaboration tool used to attain a competitive advantage. It facilitates one-on-one or group virtual meetings with students, staff, and other stakeholders. Finally, web conferencing has eased the extension of activities to a wider global reach while eliminating travel costs.

In 2014, Thailand modernized procedural requirements for institutions when conducting day-to-day business. The government passed and announced the National Council for Peace and Order No. 74/2557 concerning teleconferencing using electronic devices (Pornavalai and Supakijjanusorn, 2017). Due to the Ministry of Information and Communication Technology's security standards on teleconferencing (B.E. 2557), corporations can securely hold online meetings through electronic means instead of meeting physically, which was previously the norm (Pornavalai and Supakijjanusorn, 2017).

In Thailand, learning institutions have embraced M-Learning, and most universities in the country have adopted larger budgets to accommodate online learning. Tutors should use instruction media, worksheets, and videos to embrace this online service. Web-based interactive learning environments, web-based instruction, and web-based multimedia presentations ensure smooth learning (Sastramiharja, 2019). Thailand is in its fifth wave of technology, where online learning has become a norm. The provision of education is personalized, facilitative, and responsive through technology. Learning institutions have changed their office design, lecture rooms, and support services to accommodate online learning.

Therefore, the adoption of informational and technological systems, such as web conferencing, are beneficial in the field of education. These technological changes change the flow of information, thus allowing access to data and eliminating decision-making delays. According to Loudon et al. (2012), new information technology alters how new information technologies reengineer working processes. Collaboration is an aspect of education that is significantly affected by the adoption of information technology. It is defined as the process of working with other team members to attain shared objectives (Bower, 2011).

Collaboration is mainly geared toward accomplishing organizational objectives and can have, either short or long-term effects. These effects are dependent on the nature of the task and the relationship between the involved parties. Collaboration can occur between two or more people and through informal teams. According to Loudon et al. (2012), the success of an organization is directly influenced by its ability to collaborate internally and externally. As a result, investment in collaboration technology is necessary to make the collaborative learning process a reality. Supportive culture is essential for the realization of meaningful collaboration (Islam, 2019). Further, any organization that aims to attain collaboration needs to build its collaborative capabilities through open culture and decentralized structure. Bower (2011) states that there are several collaborative tools that aid in the conduction of learning processes. These tools include e-mail, audio, video conferencing, and web conferencing.

THE MULTIMEDIA WEB CONFERENCING EXPLORATION AND ITS RELATION TO EDUCATION

Web conferencing's combination of audio and visual communication has enhanced learning institutions' productivity through its capacity for information sharing. There has been a growth in teaching and

English language learning via this model as school departments, and teachers exploit this technology to expand the delivery of content. Web conferencing has seen communication improvements between teachers and students as they can continue teaching and learning outside the classroom setting. Further, web conferencing has proved necessary in remote education, melded education, and disciplines where shared nonverbal and verbal communication offer an improved educational experience. The culmination of bandwidth enhancements, progress in video compression procedures, and hardware scale frugality have eased web conferencing tools' access through personal computers, which is required in education. One of the oldest web conferencing softwares used in education is Elluminate Live, which was later merged with Blackboard collaborate.

For information to have a lasting effect between involved parties, the medium and manner in which the information is relayed are important. First, according to Bonk et al. (2016), web conferencing improves the level of understanding between those involved in the communication process, similar to a one-on-one scenario. Humans have a low auditory recognition memory performance; however, they possess high visual recognition memory (Bonk et al., 2016). Therefore, web conferencing taps into both the weakness of auditory and the strength of visual memory to ensure effective and efficient communication outcomes are attained.

Web conferencing communication provides facial expressions, gestures, and other visual cues integral in the communication process. Having proper communication skills and ethics enhances understanding, which in turn helps foster relationships. Proper communication is a process, and for it to be complete and successful, it must undergo the full cycle (Bonk et al., 2016). Due to the urgency of communication, especially during a group project and over a widely dispersed group, web conferencing bridges a geographical gap. It is critical to have an instant communication avenue for all of those involved. Web conferencing is a tool for communication that is essential for eliminating the overflow of messages via emails since communication can take place in real time.

In the quest to construct an informed community, it is expected that the learning process should be geared toward meeting the technological demands of new markets. This mission can only be realized if these new technological advancements are incorporated into teaching and learning processes. According to Morgan (2001), there are three stages involved in the adoption of web conferencing as a learning tool. The first stage involves the use of technology as a delivery tool for scholastic content. The second stage involves considering the learning needs of the students to aid in designing the learning environment. Lastly, the third stage involves adapting to the students' needs, but now with increased bandwidth.

By using web conferencing as a learning tool, learning and teaching function in a synchronous manner. Students and teachers interact in realtime, thus, eliminating frustration and adopting a more social approach. To effectively use web conferencing as an educational tool, teachers must carefully plan for these sessions. First, they are required to set goals and expectations for the learning session as well as examine all web conferencing tools that will be used. Second, it is important to consider the size of the class when using web conferencing for teaching. The control of audio and visual content sharing tools

during learning sessions, especially when there is a large number of participants, requires a much more guided approach than when few people participate. Therefore, teachers must carefully consider their class size before embarking on web conferencing for teaching.

Likewise, the web conferencing framework manages a few costs, including the number of students to apparatuses. It allows the capacity to flip between pre-characterized formats during learning scenes and to make new designs by hauling and resizing the apparatuses they wish to utilize while the learning action is attempted. Designs are updated to meet the synergistic prerequisites of learning activities, either ahead of time or powerfully during a learning scene. For coordinated effort, diverse web conferencing permits students to chip away at equivalent reports, programs, or thoughts simultaneously.

During a web-based learning session, students can share displays and provide control access to one another. Queries tend to increase progressively. On the off chance that a one-on-one meeting takes place, web gathering permits synchronous input. However, allowing students access the virtual space concurrently can be problematic, so web conferencing requires organized access. Learning institutions adopt web conferencing as a collaboration tool to attain competitiveness.

Several features of web conferencing enable users to work on the same task simultaneously. Features such as screen sharing allow collaboration and reading from the same book and so organizations must establish an effective knowledge management system. Knowledge is carried by people, skills, and other experts and organizations need to maximize knowledge inflow while minimizing outflow.

One strategy to attain this is to share knowledge organizationally and web conferencing is a major player in doing so. It creates an environment where people interact and share knowledge effectively (Chong et al., 2009). However, knowledge management entails much more than mere collaboration or knowledge sharing. It requires bridging the global gap experienced by many organizations. Thus, without web conferencing global companies would suffer greatly.

Additionally, web conferenced schooling requires quality sound recording devices and a reliable internet connection. A proper microphone is essential for reducing audio feedback and eliminating background noise during class sessions. Finally, to obtain the maximum result from a web conferenced learning and teaching session, it is important for teachers to establish ground rules. Informing participants on how to communicate and engaging students' attention is essential.

In developing and implementing this technology, a smooth transition to the virtual environment is essential for students. Therefore, it is essential to analyze the determinants of web conferencing in the learning environment.

FAVORABLE AND UNFAVORABLE FACTORS AFFECTING THE USE OF WEB CONFERENCING IN EDUCATION

Understanding the reasons for the adoption of web conferencing as an educational tool is useful to ensure user satisfaction and in

proving its worth for learning institutions. The first factor is the user's ability to operate web conferencing as an educational tool. Secondly, are students and teachers motivated to use the technology? Finally, what are the anxieties surrounding the technology and why might its use be avoided?

Using new technologies, among students and teachers, can be determined by examining self-efficacy. Self-efficacy, an integral construct of social psychology, is the belief in one's ability to carry out an activity. It is largely informed by the cognitive theory that humans learn by observing and imitating others (Bandura, 1986). Compeau and Higgins (1995) first coined the concept of self-efficacy regarding the use of computers and their software in 1999. It focuses on the perceived ability of an individual to operate a computer. Measuring self-efficacy entails component expertise, such as the use of the Internet or special computer skills, and determines students' judgment ability to utilize their digital literacy skills to perform overall educational tasks.

The adoption of web conferencing for learning has been associated with immense benefits for both students and teachers. According to Hurst (2020), web conferencing programs in schools increases collaboration between learning institutions. Second, it provides students with a medium for improving language learning. Third, it increases the accessibility to learning materials for both teachers and students. Web conferencing further provides mechanisms for the inclusion of subject knowledge and subject specialism into the learning curriculum. It does so by bringing experts from the same fields together and placing them into a single setup to provide learning content. Additionally, it connects schools, companies, and society widening teachers' and students' access to professional development opportunities (Mavridis et al., 2011).

According to Duckett (2020), web conferencing systems allow for a collaborative approach to learning through interaction facilitation and team construction of knowledge. This means, increased interaction between students in online classes has had positive effects on learning outcomes and student achievement. Thus, the adoption of web conferencing tools for learning offers a student-centered collaborative online learning environment that fosters independence and creative thinking while simultaneously building collaborative skills among students.

Despite all this, Hills (2003) and Sintema (2020) claim that web-based learning is not entirely beneficial to all students. While some students find virtual interaction more appealing, others view it as repulsive (Hills, 2003). In line with Hill's conclusion, a study by Wei and Johnes (2005) established that online learning reduced contact and was less instant than the physical learning environment. This created a sense of seclusion, and as a result, Wei and Johnes (2005) concluded that web-based learning tools should complement traditional schooling and not replace it. Face-to-face meetings are still preferred for effective communication and successful mastery of knowledge and skills (Larsen, 2015).

According to Mheidly et al. (2020), facial expressions are essential in ensuring effective communication; therefore, online platforms may create room for misunderstanding between teachers and students as it can be difficult to discern body language and expressions over a screen. Besides, most teachers value personal contact with their students, and the

lack thereof limits their ability to assess the concentration and participation of their students (Pokhrel and Chhetri, 2021). By reducing human contact, online meetings may also undermine social relationships, hence, they are not suitable for activities that require social relationships. An online meeting also lessens the opportunity for after-class talks to canvass what was discussed.

Further, students have also expressed mixed reactions to the implementation and adoption of web-based teaching and learning approaches. These reactions are attributed to students' levels of anxiety and motivation. According to Gegenfurtner et al. (2020), students' ability to use new software plays a role in limiting their preference in adopting new technologies. It is undeniable that some teachers and students struggle with and resist technology due to its complexities (Collis and Moonen, 2008). For this reason, web conferencing can discriminate against students who are not familiar with the technology. That being said, in some cases, technological limitations are the reason for low performance. However, it is up to teachers and learning institutions to overcome these students' barriers and improve the rate of adoption. They can tackle this issue by understanding the factors that limit students' willingness to adopt the new technologies.

Additionally, Internet connections can be interrupted, which causes disruptions in online classes, thus, reducing effectiveness and damaging the flow of useful information. Disruptions are exacerbated by low-quality equipment, so this could be corrected by installing high-quality equipment. However, it is important to note that institutions may be able to afford higher-quality equipment but not all students have access to high functioning technology.

Finally, learning may be vulnerable to becoming lax because face-to-face classes are characterized by adequate planning more than online classes. Nevertheless, online classes have more advantages than disadvantages and are game changers in learning in the 21st century.

EXAMPLES OF WEB-CONFERENCING PLATFORMS UTILIZED IN EDUCATION

In the researcher's perspective, Zoom and Google Meet are two of the useful web-conferencing platforms in the field of education. First, Zoom is a cloud-based online platform used for web conferencing audio, meetings, live chats, and meeting recordings. Zoom has grown in popularity as a web conferencing solution (Bernazzani, 2020). Zoom meetings are video conferencing meetings that use online platforms that allow co-located and remote meeting participants to communicate frictionlessly. In this case, a participant does not need to own a zoom account to participate in a zoom meeting. Zoom meetings enable individuals to attend to customers and engage in virtual interviews. Participants can join such meetings using cameras, phones, or webcams (Bernazzani, 2020). Teachers should identify the right plan for students, which the learning institution typically facilitates. The free pricing tier is a good option for people testing the platform. Using Zoom's free version, participants can hold

meetings and conferences with up to 100 participants for up to 40 min, but no time limit for one-on-one meetings (Bernazzani, 2020).

Google meet (Google Hangouts Meet) is designed for users to join a virtual meeting and share videos or speak to each other from different locations via the Internet. Google Meet has features that make it optimal for learning institutions. These features include recording, scheduling meetings, and screen sharing. Livestreams can accommodate approximately 100,000 students (Fedena, 2020). Paid-for accounts include G Suite basic, G Suite Business, G Suite Enterprise, that enables a user to host more participants in a single meeting. To join a Google Meet class, students need the code created after the meeting was scheduled. Click on the link, sent by the teacher, and "Enter a Meeting Code" (John, 2019). The session commences once the code has been input and accepted. Students must allow Google Meet to access their devices when setting up for the program for it to function correctly. It can be accessed by the website or the application. However, Google Meet does not provide annotation, remote control, and breakout room as Zoom does.

FUTURE OF WEB-CONFERENCING IN EDUCATION

It is debatable whether web conferencing has changed how learning is conducted. With the emergence of the COVID-19 pandemic that started in late 2019, learning institutions struggle to sustain their level of learning facilitation as people find it challenging to travel from one region to another (Nalakath, 2020). Companies such as Zoom have become extremely profitable as most companies and learning institutions are buying online conferencing services to continue functioning.

Previously, web conferencing received little attention, as most learning institutions utilized physical classes and lectures. However, web conferencing has physical ways of facilitating education and virtual classes have improved by advancing technology. This benefits a growing number of students seeking education from all over the world (Chazen, 2021). Teleconferences have empowered lecturers, students, motivational speakers, and others to work and communicate with colleagues and students from virtually anywhere.

Still, some scholars believe that physical classes are more efficient for learning. From the above findings, it is evident that technology has disrupted classical learning and educational approaches. Learning, especially in higher institutions, has evolved tremendously, and more technological tools are becoming available for student engagement (Chazen, 2021; Ma and Li, 2021). The emergence of digital media and the implementation of online tools have modernized education while driving student-teacher engagement (Vlachopoulos, 2021).

CONCLUSION

Web conferencing systems allow for a collaborative approach to learning through interaction facilitation and team

construction of knowledge. Increased interaction between students positively affects students' learning outcomes and achievements. As a result, the adoption of web conferencing tools for learning is the greatest form of offering a student-centered collaborative online learning environment that fosters independence and creative thinking while simultaneously building collaborative skills among students. The web conferencing framework, likewise, managed the cost of a few adaptabilities, including the capacity to change the entrance control of members to apparatuses, the capacity to flip between pre-characterized formats during learning scenes, and the ability to make new designs by hauling, dropping, and resizing the apparatuses they wish to utilize while the learning activity is being attempted. This permits designs to be updated to meet the synergistic prerequisites of learning activities, either ahead of time or, powerfully, during a learning scene. For coordinated effort, diverse web conferencing permits students to chip

away at equivalent reports, programs, or thoughts simultaneously. Students can share their insights on the subject with ease. For instance, when a group deals with new prerequisites for commercial development, automated conceptualization could be valuable. A class conducted through web conferencing allows for the sharing of displays and provides controlled access to one another. Queries can be tended to in single one-on-one meetings; therefore, web gatherings permit synchronous input. While useful for conceptualizing, concurrent entrancing can be problematic, so web conferencing requires organized access.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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