STUDENTS' PERCEPTION ON THE USE OF VIDEO CONFERENCING SOFTWARE FOR LEARNING DURING THE COVID-19 PANDEMIC

Saiful Akmal
Universitas Islam Negeri Ar Raniry, Banda Aceh, Indonesia
saiful.akmal@ar-raniry.ac.id

Safrul Muluk
Universitas Islam Negeri Ar Raniry, Banda Aceh, Indonesia
safrul.muluk@ar-raniry.ac.id

Habiburrahim
Universitas Islam Negeri Ar Raniry, Banda Aceh, Indonesia
habiburrahim@ar-raniry.ac.id

Khairul Azmi
Universitas Islam Negeri Ar Raniry, Banda Aceh, Indonesia
170203148@student.ar-raniry.ac.id

Abstract
This study analyzes how students perceive the use of video conferencing software for educational purposes during the epidemic. During a pandemic, the researcher focuses on the students' use of Zoom, Google Meet, and Skype. This study's samples consist of six UIN Ar-Raniry English Language Department students with the online learning experience. This qualitative research collects data through interviews using purposive sampling. Several positive responses revealed that video conferencing software offers numerous advantages during the pandemic. Utilizing Zoom, Google Meet, and Skype is the most effective method for applying online learning throughout the pandemic's hard conditions. However, challenges such as adaptability to technological use, technical difficulties, and lack of computer literacy are unavoidable.

Keywords: Online Learning, Students' Perceptions, Video-Conferencing,

INTRODUCTION

Since the outbreak of COVID-19 in early 2020, students and teachers have had no choice but to learn from home. This unexpected move to home learning has significantly impacted students, parents, and teachers all around Indonesia. The demand for online learning has risen rapidly due to certain conditions happening in the world.[1] The teaching and lecturing processes must be handled through online learning platforms to prevent physical contact in regular classes.

[1] Sokhira Linda Vinde Rambe, "Creative Techniques for Online Learning Assessment," *Englisia: Journal of Language, Education, and Humanities* 8(2) (May 3, 2021), p. 138.

Since then, educators have attempted to provide students with the most comfortable and cost-effective online learning experience possible by utilizing video conferencing software to simulate two-way communication as in a regular classroom.

Video conferencing is one of the technological systems that can be used in distance education. Some types of video conferencing software widely used in education and other online meetings are Zoom, Google Meets, and Skype. These softwares offer effective face-to-face lectures and video lectures for delivering course content and gaining student response and feedback. In addition, these two ways in which virtual environments have become very popular in supporting online learning.[2]

However, in the situation where education is being done online, it is inevitably not working fully effectively, especially regarding the internet speed, the network, and even the media used.[3] Thus, teachers must upgrade their qualifications and acquire the necessary information and abilities to improve their teaching performance in the online learning environment.[4] Moreover, it was also a significant challenge for students who live in rural areas.[5] According to the news article, some students need to go a long distance and climb trees to access the Internet.[6] There is, likewise, no exception for students who live in urban areas.[7] They complain about problems brought on by online learning systems during a pandemic, such as having to pay a lot of money for data packages and a ton of assignments from lecturers, etc.

Many issues arise in online language learning among students, teachers, and parents. Meanwhile, some study indicates that video conferencing software as an online education tool effectively improves teaching and learning through remote learning.[8] As a result, the authors believe it is important to learn about students' perceptions of using video conferencing software for learning during the COVID-19 pandemic because online learning is still currently happening.

The previous research regarding this topic was conducted by Malinovski et al.[9] entitled "Adult Students' Perceptions in Distance Education Learning Environments Based on a Videoconferencing Platform – QoE Analysis." This study investigates adult students' subjective perceptions using distance education systems based on a video conferencing platform, Quality of

[2] Norma I. Scagnoli, Jinhee Choo, and Jing Tian, "Students' Insights on the Use of Video Lectures in Online Classes," *British Journal of Educational Technology* 50(1) (January 2019), p. 414.

[3] Rimba Hamid, Izlan Sentryo, and Sakka Hasan, "Online Learning and Its Problems in the Covid-19 Emergency Period," *Jurnal Prima Edukasia* 8(1) (January 29, 2020), p. 86.

[4] Arief Eko Priyo Atmojo, "EFL Teachers' Online Teacher Professional Development Experiences amidst the COVID-19 Pandemic: Practices and Perceptions," *Englisia: Journal of Language, Education, and Humanities* 9(1) (November 7, 2021), p. 9.

[5] Bramianto Setiawan and Vina Iasha, "COVID-19 Pandemic: The Influence of Full-Online Learning for Elementary School in Rural Areas," *Jurnal JPSD: Jurrnal Pendidikan Sekolah Dasar* 6(2) (2020), p. 114–23.

[6] Michael Hangga Wismabrata, "Viral, Foto Sejumlah Siswa Panjat Pohon Cari Sinyal Untuk Belajar Daring Di Simalungun," *Kompas.Com*, August 1, 2020.

[7] Moch. Bambang Sulistio, "Comparative Study of E-Learning Readiness and Socio-Economic Factors during Covid-19 Pandemic: Evidence from High School Students in Urban and Rural Areas of Indonesia," in *1st International Conference on Teaching, Education and Learning Conference*, 2021, p. 14–29.

[8] Duygu Candarli and H. Gulru Yuksel, "Students' Perceptions of Video-Conferencing in the Classrooms in Higher Education," *Procedia - Social and Behavioral Sciences* 47 (2012), p. 357.

[9] Toni Malinovski et al., "Adult Students' Perceptions in Distance Education Learning Environments Based on a Videoconferencing Platform – QoE Analysis," *Journal of Information Technology Education: Research* 14(1) (2015), 1–19.

Experience (QoE). In this study, researchers used literature review research. Based on a literature review, sociological behaviour, and expectations, the researchers constructed a structural equation model (SEM) illustrating relations among different variables that can predict positive levels of adult students' QoE, thus providing guidelines for proper development. The subjects are tests using a survey of 198 participants, reflecting the specific population of adult students interested in continuing education. The measuring instrument used in this research is Structural Equation Modelling (SEM), a multi-equation technique and a powerful way of testing the credibility of models. The analysis showed that adult students' QoE is directly influenced by the appropriateness of teacher-student interaction and ease of participation and predicted by students' motivation to attend similar training. The difference between this study lies in the measuring instrument used, the research method, and the subjects. This study is categorized as a qualitative method with a case study approach. The next difference lies in the research subject and the number of participants involved.

Another research was carried out by Scagnoli entitled "Students' insights on the use of video lectures in online classes", which aims to investigate online student experiences with video lectures, focusing on their opinion of the usefulness of video lectures, their satisfaction with them, and their perception of learning derived from them.[10] The participant sample for this study was selected using a typical purposeful sampling method. The research subjects were 94 graduate and undergraduate students. The results of this study indicate that students' satisfaction with video lectures has a strong relationship with a positive overall learning experience and perception of the impact of video on learning. The similarity between this study and the research conducted in the theme of 'student perceptions on video learning tools', while the difference between this study and the research conducted is that it lies in the number population and sample, as well as the context of the research participants, namely in this previous study examining both graduates and undergraduate students who used to attend online classes and video lectures, while the research conducted by researchers is on English Department students at UIN Ar-Raniry Banda Aceh.

RESEARCH METHOD

This study employs qualitative descriptive since the data collection does not involve numerical measurement. It analyzes answers from interview results focused on examining students' perceptions of using Zoom, Google meets and skype during a long pandemic during their online learning. In analyzing the data, the researchers use a narrative analysis to describe and interpret the result of qualitative data. The information gained from the interview data was used to interpret and write the conclusion from the data gathered.

This research was conducted at Ar-Raniry State Islamic University Banda Aceh. Purposive sampling was used to obtain the participants because the researcher set specific criteria for determining the research participants. To get the correct data, an informant who has it must be competent and act according to data needs (purposive). The table below contains information from participants who used video conferencing software for learning during the COVID-19 epidemic.

[10] Scagnoli, Choo, and Tian, "Students' Insights on the Use of Video Lectures in Online Classes." *British Journal of Educational Technology* 50(1) (January 2019), p. 399.

Tabel 1. Participants' information

No.	Initial	Gender
1	P1	Male
2	P2	Female
3	P3	Male
4	P4	Female
5	P5	Male
6	P6	Female

As shown in the table above, the participants were six PBI students of the UIN Ar-Raniry batch of 2017 final-year students. The participants were selected for several reasons. First, they have experience using video conferencing software in their learning process during the pandemic. Second, they came from various regions of Aceh (rural and urban), such as Banda Aceh, Aceh Besar, Meulaboh, Lhoksumawe, and Simeulu. Then, they completed all the courses taken during the pandemic with an online learning system.

A semi-structured interview is used to obtain the data from participants. This type of interview is chosen because the questions can be developed based on the participant's answers and current situation. The interview was conducted to collect data about students' perceptions of using video conferencing software for learning during the pandemic. Due to the COVID-19 pandemic, the face-to-face interview cannot be conducted. Therefore, the researchers conducting online interviews through telephone interviews are allowed in research when the researcher and the participants cannot meet in a location to do the face-to-face encounter.

FINDINGS

This study intends to evaluate how English education students of UIN Ar-raniry view the use of video conferencing technologies for educational purposes during a pandemic. Six participants who have used video conferencing for online learning provided their ideas and insights during the telephone conversation.

Possitive Responses

1. Video Conferencing Software facilitate students' online learning

Based on the interview results, all respondents agree that video conferencing software helps students accomplish studies because students can have mutual interaction synchronously through this platform, as mentioned by participant 5:

> "Using those platforms, we (students) can interact directly with the lecturer and peers to understand the learning material, which is very helpful and easy to use" (P5).

Participant 2 also shared the same idea:

> "During the pandemic, everyone is dependent on video conferencing software. It has helped me as a West Aceh student studying in Banda Aceh" (P2).

Based on the aforementioned response, the researchers concluded that video conferencing software is now required, particularly for students who live distant from the university and believe that using VC is very appropriate.

2. Experiencing New Vibes of Learning Environment

Even though the pandemic was dire then, all participants agreed that video conferencing helped them stay connected with the lecture in a face-to-face setting. There are many features in the video-conferencing application that allow users to conduct virtual learning classes. In short, no response indicated some of the party's disapproval of using video conferencing software for learning. The responses are shown below:

> "I believe that this video conferencing software helped me a lot in accomplishing my study, even though this is my first time using VC for learning because of the pandemic, and it is fun" (P2).
> "During the pandemic, we cannot learn face-to-face, but we can still complete the courses using video conferencing, making it easier to get material online from lectures" (P1).

3. Boost Students' Motivation in Learning

Four out of six students reported a boost in motivation when utilizing Google Meet, Zoom, and Skype for virtual learning. It is happening as a result of simple access. They can study anywhere, at any time, as long as they have access to the internet, and they save a lot of energy by not having to attend regular college classes. The participants' responses are shown below:

> "What I like about learning through video conferencing software during the pandemic is that we can use it easily. VC is accessible anywhere and anytime as long as we have a sufficient internet connection" (1).

> "I am very happy to learn to use video conferencing software during a pandemic because technology in the learning system must be implemented in this developing era. In this pandemic, access to learning is very open, and students can still carry out lectures" (P2)

> "Learning using video conferencing software helps me a lot. I feel very challenged and motivated every time I enter the class. I love it if the lecture continually adopts technology in the educational setting because it brings a very good vibe to the classroom" (P6).

From the responses above, it is confirmed that using video conferencing software for learning during the pandemic generates successful learning activities since the teacher can integrate the lesson, instructional technique, and medium of learning. This is one of the internal aspects that can be altered to improve student learning motivation. In addition, VC enables teachers and students to manage, interact, and fulfill their learning objectives through the use of learning activities based on certain materials, methodologies, and media.[11]

4. Establish Active Learning

Active learning requires students to participate in all aspects of learning, including thinking, debating, discovering, and producing. Active learning in the classroom will help students to solve issues, engage with complex questions, discover answers, and express their ideas through writing, discussion, and presentation in their native language.

From the participants' responses, the researcher concluded that they agreed that learning through video conferencing software brings many benefits, one of which can be established as active learning, such as face-to-face learning in the real classroom. However, they all said that active learning could only be applied to certain lessons, for example, listening and writing classes, because the feature in the VC needs to be improved to support the online learning system. The responses are shown below:

> "I strongly agree that VC has so many benefits inside of the features. It can create active learning as we learn in real class. However, I still think the institution does not find the solution for lessons such as writing, listening and some other subject" (P3).

> "Maybe I can get the knowledge more easily by learning from the lecture. Just give me the written lease, and I will find answers. So I think there is an interaction between us, and you can ask the question, and the lecture will answer it in real-time. So, I think that's true, but I wouldn't say I like it when listening to class. It required us to learn alone because sometimes the lecture does not provide the materials" (P6).

> "For example, in some classes, writing and listening are so bad that I get confused every time I enter this class using VC. I guess we can still implement active learning for the other courses" (P3).

[11] Ismail Hanif Batubara et al., "The Effectiveness of Learning Using Social Media during the Covid 19 Pandemic in Higher Education," *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences* 4, no. 2 (May 3, 2021): 2177–83, https://doi.org/10.33258/birci.v4i2.1908.

Negative Responses

The implementation of e-Learning is the latest wave of education because of the pandemic. The use of video conferencing software is already having a fair show despite posing challenges for both instructors and students. While instructors need intensive work and time to design the instruction, students need to equip themselves with technical proficiency to decode the course material. Based on the interview data, the researcher found four problems the students face when they must use video conferencing software for learning during the pandemic.

1. Adaptability Struggle

Students' learning experiences differ from regular classroom and face-to-face instructor training to computer-based training in a virtual classroom. Their intolerance of change prevents them from adapting to the online learning environment, whereas getting used to Course Management Systems (CMS) and computer-based education methods takes time.

As stated by participant 4:

> "We can learn new things in this e-learning implementation with technology-based learning. As I said before, is this more creative or innovative and facilitates students in the learning process? However, trying to adapt to technology takes more of my time" (P4).

Participant 1 also stated:

> "I need to access a certain part of video conferencing software, but it is okay because we can find how to access it on the internet" (P1).

2. Technical Issues

Many students are not provided with the high bandwidth or the robust internet connection that online courses require and thus fail to catch up with their virtual classmates. Moreover, many students live in remote areas where it is difficult to access good internet access. The responses are shown below:

> "Well, internet quota data is my biggest problem. I live in Simeulu, and the data package is so expensive, and sometimes our internet connection is so bad that I must walk away from home to access Google Meet" (P3).

> "Sometimes it is confusing, and the biggest problem is the internet network. I need to buy many data packages to run applications such as Google Meet, Skype, and Zoom. In my home, the area that provides free unlimited internet connection is almost nothing" (P4).

3. Computer Literacy

Although students are generally tech-savvy and thus able to manage computers well, a lack of computer literacy is a significant issue among students today. Many of them cannot operate basic programs such as Microsoft Word and PowerPoint and, therefore, cannot handle their files. Furthermore, some of the lectures lack computer literacy. They ask for help from a student on how to access video conferencing software to use the student's time to gain material for the lesson. Participant 2 stated that:

> "The institution needs to consider the lecturers who lack computer literacy. Some of my classes still have lecturers who cannot run E-learning using video conferencing software. That's all my suggestions for our institution. The lecturer must be trained on how to run e-learning" (P2)

Regarding computer literacy, the researchers conclude that teachers and students must independently equip themselves with computer knowledge. Students should not only depend on teachers who teach, as well as the teacher must continue to adapt to online learning during the pandemic. If educators cannot adjust their talents, attitudes, and skills in using technology in teaching, the teaching profession may be readily supplanted in the future by online learning classes such as Ruang Guru, Coursera, and others.[12]

4. Time Management

Time management is difficult for learners, as online courses require much time and intensive work. Moreover, in this pandemic, some lecturers seem not to be serious about implementing online learning. Some lecturers prefer to give tons of assignments rather than use video conferencing software for education. Therefore, students spend much time accomplishing and handing in the assignments. Participant 1 stated that:

> "I can't entirely agree with the lecturer who only shares the material and asks us to summarize it for 16 meetings; it is useless. Right. I'm afraid I have to disagree with that trick. Yeah It's not important, but it gives us an explanation of the material. What do we get if they just put tons of quizzes, assignments, and so on? As a student seeking knowledge, I am enormously disappointed with the kind of lecturer" (P1).

[12] Saiful Akmal, "Belajar Di Era 4.0: Tidak Melulu 'High-Tech,'" *Aceh Trend*, November 25, 2019, https://www.acehtrend.com/news/belajar-di-era-4-0-tidak-melulu-high-tech/amp.html#.

5. Minimum Meeting Requirements

Regarding the minimum obligations that lecturers must carry out with Google Meet, all the students knew that the minimum requirement for online meetings that lecturers have to do is four. As mentioned by participant 1:

> "Yes, in lectures, every permanent lecturer provides information about the lecture contract, including the number of meetings that must be held online, and I think the number of meetings is not enough. Most lecturers do more than that" (P1).

Similarly, participant 6 also stated that:

> "The number of mandatory online meetings is four times the minimum. All the lecturers think this is not enough because I believe only four times is not enough to make us understand" (P6).

From the interview data regarding the minimum obligations lecturers must carry out, the writer concludes that all students know about online meetings that lecturers must hold. However, all of them believe that the minimum amount offered is insufficient, especially for challenging courses. This finding is in line with Yusny et al., who explain that a short period might become a severe issue in students' learning process during online classes. Students have a limited amount of time to absorb information efficiently.[13] As a result, due to a lack of time to study in the classroom, many lectures go undone, and many learning materials go unnoticed. A short time period might become a severe issue for students' learning processes during online classes. Students have a limited amount of time to absorb information efficiently. As a result, due to a lack of time to study in the classroom, many lectures go undone, and many learning materials go unnoticed.[14]

Regarding the satisfaction of the assessment, all students feel dissatisfied with the online learning that has been running so far, especially with the assessment itself. Online learning in a pandemic situation looks like there is no clear basis for the assessment. The assessment seems easy, and there are no clear indicators that are fair.

DISCUSSION

This research aimed to determine the students' perception of video conferencing software in their learning, despite any subject they may have experienced. The results data of the discussion

[13] Rahmat Yusny et al., "Offline or Online?: EFL Students' Perceptions on Working in Face-to-Face and Virtual Learning Modes," *Englisia: Journal of Language, Education, and Humanities* 9(1) (November 7, 2021), p. 113.

[14] Emawati, "Pembelajaran Online: Persepsi Dan Penerapannya Di Universitas Muhammadiyah Aceh," *Jurnal Ilmiah Didaktika* 22(1) (2022): p.162.

is received from the interview of the six participants. The researchers discovered a wide range of ideas and responses from each participant.

The researcher describes positive perception as all knowledge and responses that indicate continuing to use it by activating, accepting, and supporting the perceived object. Through the interview section, the researcher found that correspondents thought video conferencing software was the right solution to become a medium in meetings or discussions in class or outside the classroom during distance learning. Students benefit from convenience when using VC in their education due to the features available in virtual meetings, such as shared screens, microphones, and chatrooms. This finding is supported by Scagnoli that found the usefulness and satisfaction of online learning using video conferencing software that leads students to stay connected to lectures.[15] In addition, Habiburahim agrees that the advancement of technology provides benefits to higher education, especially for students.[16]

Some participants wish to use VC in future activities in class and outside the classroom, like other video conferencing applications, such as webinars, meetings, and group studies. This is due to the time and places flexibility that videoconferencing software adopts in an asynchronous system. They may still attend lessons and connect even if they live in a different place, province, or country. Especially in learning, direct communication and feedback are essential. Some students also claimed that they could multitask while listening to lectures. This is similar to the findings of the Blasco study, which demonstrated the benefits of videoconferencing systems.[17]

Video conferencing software involves using technology from internet connections and devices. Therefore, various issues are often encountered, such as unstable connections, disconnections, and other technical problems. Surprisingly, the researcher found that some students had to find a higher place to get a better signal because the internet connection near their homes was terrible due to the geographical conditions.

CONCLUSION

According to the finding, students positively perceive using video conferencing software for learning throughout the pandemic. They agree that video conferencing software is the ideal choice for online learning systems, specifically for distant education. Video conferencing software is the best solution to become a tool in meetings or conversations inside and outside the classroom. Its capabilities, such as a share screen, microphone, and chatroom, make it easy to help students connect with colleagues and lecturers concurrently. Then, some students prefer to use VC in future activities in class and outside the classroom, like other video conferencing applications, such as webinars, meetings, and group studies. This is owing to the time and place flexibility that videoconferencing software embraces in an asynchronous environment. However, although students are often tech-savvy and thus able to operate computers successfully, a lack of

[15] Scagnoli, Choo, and Tian, "Students' Insights on the Use of Video Lectures in Online Classes."

[16] Habiburrahim, "The Advantages and Challenges of Internet for Higher Education," *Jurnal Ilmiah DIDAKTIKA* 13(1) (2012), p. 173.

[17] María Francisca Blasco, "E-Learning Using Video Conferencing Applications: How Is Google Meet Perceived among Students?," in *Proceedings of The 2nd World Conference on Research in Education* (Acavent, 2020).

computer literacy is a big issue among students today. Many of them cannot run basic programs such as Microsoft Word and PowerPoint and cannot handle their data. Furthermore, several of the courses lack computer competence. They ask for advice from a student on how to access video conferencing software to use the student's time to gain content for the class.

Based on the findings reported in the preceding chapter, it is proposed that video conferences (VCs) may be the ideal alternative for conducting synchronous teaching and learning processes. It enables students and lecturers to interact with one another even if they are in distant locations. Video conferencing software can be combined with other teaching tools or strategies to create an enjoyable and informative lesson. However, the institution must consider instructors who lack computer literacy and students who face regional barriers to online courses.

REFERENCES

Arief Eko Priyo Atmojo, "EFL Teachers' Online Teacher Professional Development Experiences amidst the COVID-19 Pandemic: Practices and Perceptions." Englisia: Journal of Language, Education, and Humanities 9, no. 1 (November 7, 2021): 1–9. https://doi.org/10.22373/ej.v9i1.9127.

Bramianto Setiawan, and Vina Iasha. "COVID-19 Pandemic: The Influence of Full-Online Learning for Elementary School in Rural Areas." Jurnal JPSD: Jurrnal Pendidikan Sekolah Dasar 6, no. 2 (2020): 114–23. https://doi.org/10.30870/jpsd.v6i2.8400.

Duygu Candarli, and H. Gulru Yuksel. "Students' Perceptions of Video-Conferencing in the Classrooms in Higher Education." Procedia - Social and Behavioral Sciences 47 (2012): 357–61. https://doi.org/10.1016/j.sbspro.2012.06.663.

Emawati. "Pembelajaran Online: Persepsi Dan Penerapannya Di Universitas Muhammadiyah Aceh." *Jurnal Ilmiah Didaktika* 22, no. 1 (2022): 162–76.

Habiburrahim. "The Advantages and Challenges of Internet for Higher Education." *Jurnal Ilmiah Didaktika* 13, no. 1 (2012): 173–82.

Ismail Hanif Batubara, Kholidah Nur, Ali Topan Lubis, and Nanang Arianto. "The Effectiveness of Learning Using Social Media during the Covid 19 Pandemic in Higher Education." Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences 4, no. 2 (May 3, 2021): 2177-83. https://doi.org/10.33258/birci.v4i2.1908.

María Francisca Blasco, "E-Learning Using Video Conferencing Applications: How Is Google Meet Perceived among Students?" In Proceedings of The 2nd World Conference on Research in Education. Acavent, 2020. https://doi.org/10.33422/2nd.worldcre.2020.09.217.

Michael Hangga Wismabrata, "Viral, Foto Sejumlah Siswa Panjat Pohon Cari Sinyal Untuk Belajar Daring Di Simalungun." Kompas.Com August 1, 2020. https://regional.kompas.com/read/2020/08/01/18100071/viral-foto-sejumlah-siswa-panjat-pohon-cari-sinyal-untuk-belajar-daring-di?page=all.

Moch. Bambang Sulistio, "Comparative Study of E-Learning Readiness and Socio-Economic Factors during Covid-19 Pandemic: Evidence from High School Students in Urban and Rural Areas of Indonesia." In 1st International Conference on Teaching, Education and Learning Conference, 14–29, 2021. https://doi.org/10.32789/tel.2021.1002.

Norma I. Scagnoli, Jinhee Choo, and Jing Tian. "Students' Insights on the Use of Video Lectures in Online Classes." British Journal of Educational Technology 50, no. 1 (January 2019): 399–414. https://doi.org/10.1111/bjet.12572.

Rahmat Yusny, Fitria Rizki, Ika Kana Trisnawati, and Mulia Mulia. "Offline or Online?: EFL Students' Perceptions on Working in Face-to-Face and Virtual Learning Modes." Englisia: Journal of Language, Education, and Humanities 9, no. 1 (November 7, 2021): 113–20. https://doi.org/10.22373/ej.v9i1.10364.

Rimba Hamid, Izlan Sentryo, and Sakka Hasan. "Online Learning and Its Problems in the Covid-19 Emergency Period." Jurnal Prima Edukasia 8, no. 1 (January 29, 2020): 86–95. https://doi.org/10.21831/jpe.v8i1.32165.

Saiful Akmal, "Belajar Di Era 4.0: Tidak Melulu 'High-Tech.'" Aceh Trend, November 25, 2019. https://www.acehtrend.com/news/belajar-di-era-4-0-tidak-melulu-high-tech/amp.html#.

Sokhira LindaVinde Rambe, "Creative Techniques for Online Learning Assessment." Englisia: Journal of Language, Education, and Humanities 8, no. 2 (May 3, 2021): 138–47. https://doi.org/10.22373/ej.v8i2.8111.

Toni Malinovski, Tatjana Vasileva-Stojanovska, Dobri Jovevski, Marina Vasileva, and Vladimir Trajkovik. "Adult Students' Perceptions in Distance Education Learning Environments Based on a Videoconferencing Platform – QoE Analysis." Journal of Information Technology Education: Research 14, no. 1 (2015): 1–19. https://doi.org/10.28945/2091.