



European Journal of Educational Research

Volume 10, Issue 3, 1515 - 1528.

ISSN: 2165-8714

<http://www.eu-jer.com/>

Student Perceptions of Online Learning during the COVID-19 Pandemic in Indonesia: A Study of Phenomenology

Purwadi 

Universitas Ahmad Dahlan,
INDONESIA

Wahyu Nanda Eka

Saputra 
Universitas Ahmad Dahlan,
INDONESIA

Amien Wahyudi 

Universitas Ahmad Dahlan,
INDONESIA

Agus Supriyanto 

Universitas Ahmad Dahlan,
INDONESIA

Siti Muyana 

Universitas Ahmad Dahlan,
INDONESIA


Prima Suci

Rohmadheny 
Universitas Ahmad Dahlan,
INDONESIA

Restu Dwi Ariyanto 

Universitas Nusantara PGRI
Kediri, INDONESIA

Shopyan Jepri

Kurniawan 
SMA Muhammadiyah 1
Yogyakarta, INDONESIA

Received: January 22, 2021 • Revised: May 25, 2021 • Accepted: June 27, 2021

Abstract: The Coronavirus disease (COVID-19) pandemic impacted various lines in the international world, including Indonesia. Pandemic COVID-19 in Indonesia has also changed multiple performances in multiple sectors, one of which is education. The concept of learning from home changes lecturers' paradigm as educators in tertiary institutions applying online learning. This study aims to identify students' perceptions of the implementation of online learning during the COVID-19 pandemic. This study uses a qualitative research approach with the type of phenomenology. The subject of this study was 22 students in Indonesia who experienced the impact of the COVID-19 pandemic. This research instrument uses semi-structured interview guidelines. Students perceive online learning during the COVID-19 pandemic as (1) ineffective learning activities; (2) unpleasant learning activities; (3) limit self-actualization in education; (4) helping to become an independent person in learning; and (5) fun learning activities. Higher Education should create innovative and creative online learning strategies. Thus, students have a high enthusiasm for online learning.

Keywords: *Online learning, COVID-19, pandemic, perceptions, phenomenology.*

To cite this article: Purwadi, Saputra, W. N. E., Wahyudi, A., Supriyanto, A., Muyana, S., Rohmadheny, P. S., Ariyanto, R. D., & Kurniawan, S. J. (2021). Student perceptions of online learning during the COVID-19 pandemic in Indonesia: A study of phenomenology. *European Journal of Educational Research*, 10(3), 1515-1528. <https://doi.org/10.12973/eu-jer.10.3.1515>

Introduction

COVID-19, or the so-called Coronavirus disease, has spread in many countries or throughout the world. The study results state that the COVID-19 mortality rate is around 3-7% of the average world death (Mehta et al., 2020). The data is the average worldwide, which may differ from the Indonesian country. The death rate due to COVID-19 is due to the infected individual having the severe acute respiratory syndrome, so 2020 is called the International Year of Public Health and International Concern (Zheng et al., 2020). The high point is death results COVID-19 due to the vaccine bell um found and transmitted rapidly through physical contact. Deaths that occur in individuals infected with the coronavirus occur because of the time lag between patient examination, sample collection, disease development in the body (Mizumoto et al., 2020), as well as accompanying diseases such as heart, lung, kidney, hypertension, and diabetes (Esler & Esler, 2020). Physical transmission occurs because everyone can transmit COVID-19 to others (Bai et al., 2020).

The unstable world health condition due to the spread of the Coronavirus has a negative impact on everyone's psychological condition (Grover et al., 2020). This emergency condition can increase alertness, fear, anxiety, and even depression (Turabian, 2020). With this COVID-19 emergency, everyone is trying to protect themselves from the threat of the virus in various ways, starting from increasing the body's immunity by consuming various vitamins, maintaining distance, wearing masks, not leaving the house or crowding in crowds, and other ways that are considered effective. In breaking the chain of the coronavirus. It is not uncommon for individuals to feel suspicious of each other, assuming that

* **Corresponding author:**

Wahyu Nanda Eka Saputra, Universitas Ahmad Dahlan, Guidance and Counseling Department, Indonesia. ✉ wahyu.saputra@bk.uad.ac.id

© 2021 The Author(s). **Open Access** - This article is under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>).



other people can carry the virus. This kind of perception, if it occurs continuously, can certainly have a negative psychological impact, for example, relationships between people become tenuous. Therefore, there is a need for education about the coronavirus.

The education sector is one of the lines participating in the listing of physical distancing. This social distance reduction is due to transmission of the virus through direct contact or droplets from talking, sneezing, coughing, or tears to the nose, nose, and other human eyes, and requires self-isolation strategies at home or referred to as fecal-oral transmission (Singhal, 2020; Yeo et al., 2020). Each State, one State of Indonesia, has set up a strategy to suppress the spread of pandemic diseases COVID-19 or corona. The government implements social distancing or physical distancing, but this strategy's success depends on community compliance for its implementation (Jarvis et al., 2020). The application of social distancing or physical distancing has consequences for humans' well-being and mental health, especially students in schools who apply to study or study online because not all children have access to technology that enables remote connectivity (Galea et al., 2020).

In Indonesia, from the Early Childhood Education level, Elementary School, Middle School, Vocational School to Higher Education, is affected by the pandemic COVID-19. The impact of COVID-19 in the world of education is the learning process through online lectures. Many universities are implementing online learning to integrate big data or the internet through the media of tablets, smartphones, and laptops in the era of the industrial revolution 4.0 (Huda et al., 2018). The fact is that not all students have access to technology and the limited cost of using technology amid the pandemic COVID-19, one of which is decreasing parental income or parents stopping work because of mass layoffs. This condition causes disasters for students, academic staff, non-academic staff, faculty, and relations outside the University (Hodges et al., 2020).

The Indonesian government asks all education activists to close schools as an emergency measure to prevent coronavirus infection spread, as practiced by the Chinese government (Wang et al., 2020). The government closed schools and universities indefinitely. The effect is an online learning process. The impact of online learning or learning from home is fear of COVID-19 infection, frustration and boredom, inadequate information, lack of direct contact with classmates, friends, and teachers, and lack of personal space at home. Besides, online learning also causes family financial losses because they have to pay for accessing the internet (Galea et al., 2020).

Online learning in the world of education is the primary strategy for the continuity of the maximum learning process during the pandemic of COVID-19. Online learning occurs in all parts of Indonesia, from regions, cities, or districts, to the provinces. Learning from home raises the fear of COVID-19 infection, frustration, boredom, inadequate information, lack of contact with classmates, friends, teachers, lack of personal space at home, and family financial losses. Online learning requires qualitative and quantitative measurements to determine its success. Online education's success is the emergence of emotional involvement and learning motivation (Özhan & Kocadere, 2020).

Information technology can indeed replace education in the future, but it cannot replace educators' part. Learning involvement requires two essential aspects, namely student behavior and interaction with students, to detect learning difficulties experienced by students in real time (Zhang, Wang, et al., 2020). The conclusion is that not all technology can replace the role in the education process. Educators have a pedagogical approach to realizing the potential value of online learning programs (Aitken, 2020).

The fact is that colleges are implementing online learning in the COVID-19 pandemic. Another event is that students also experience fear of infection, frustration, boredom, inadequate information, lack of direct contact with classmates, friends, teachers, lack of personal space at home, and family financial losses. This perception needs precise measurements related to the success of online learning during the pandemic COVID-19. Indicators of online learning success pay attention to three aspects: student involvement, self-regulation practices, and student satisfaction (Pellas, 2014). Effective online media provide ease of use, flexibility, and use (Lee et al., 2020; Wiretna et al., 2020). Online-based cellular learning also provides students opportunities to learn anytime and anywhere (Darmaji et al., 2019).

Perception is the way individuals interpret or describe information about environmental conditions. The understanding of students' online learning is the interpretation and description of students that can provide information to the public about the process and situation of online learning cognitively and affective. Accompanying factors can also be a cause of changing online learning perceptions, as some students cannot achieve high-level thinking skills from applying technology to solve practical problems (Lin, 2019).

Online learning using modules for discussion was very much liked by them, but one thing they did not like was that the completion time was longer. Students get excited when learning online as can be done wherever students are located. Such a perception certainly supports users of online learning media (Smart & Cappel, 2006). Furthermore, this measurement can be a reference related to online learning's strengths and weaknesses, explicitly increasing educators' competence in the industry 4.0 era. In addition to improving teacher competency, students are also aware of skills in the digital age, especially online learning readiness for students in Indonesia. Online learning as a complementary tool to encourage and empower independent learning and innovative teaching becomes an integral part of education in the

21st century. Then, the assignment of learning tasks to meet teachers' needs and pay attention to instilling students' self-efficacy beliefs, thereby increasing learning involvement during online learning (Zhang & Liu, 2019).

Background studies related to the urgency of online learning perceptions during the 19th pandemic focused on students in Indonesia. This measurement's first purpose is to determine students' perceptions of the cognitive aspects or students' thoughts about the online learning process during the pandemic COVID-19. The second objective is to determine students' feelings about the online learning process during the COVID-19 pandemic.

Literature Review

Online learning

Online learning is a significant trend in education globally. Demographic conditions and differences in readiness between students are challenges of online learning. At a higher level of education, usually, online learning applies the blended learning method (Auster, 2016; Dziuban et al., 2018). The factor that influences online learning success is the acceptance of student learning during the learning process. The construct of service quality and confidence are two variables that affect online learning recognition (Lee et al., 2009). Service quality constructs include instructor characteristics, instructional materials, and learning design content. The construct of belief has perceived usefulness and perceived ease of use.

On the other hand, social presence is an essential factor in the satisfaction of implementing online learning (Gunawardena & Zittle, 1997). Social presence is the level of awareness of a person in interaction with the online learning community. This condition shows that people consciously and take part in online business by paying attention to social context, online communication, and interactivity (Tu & McIsaac, 2002). Besides, lecturers need to pay attention to the importance of social presence (Wise et al., 2004), the convenience of communicating and interacting in an online environment (Cobb, 2009), and time duration and gender (Tasir & Al-Dheleai, 2019) in the implementation of online learning.

The successful implementation of online learning is also supported by the online learning community (Maddix, 2013). Case-based group work can reduce the gap between theory and practice in online communities (Lee et al., 2016). Other research shows that collaborative online learning with computers can affect communication quality in the early days of grub and work experience in online learning (Liu et al., 2018). Initial collaboration in a group is marked by technical competence, initial leadership, quality communication, and establishing group norms). Work experience is characterized by the experience of working offline and sharing work skills experience in online grub.

Perceptions of Online Learning when Pandemic COVID-19

Pandemic COVID-19 first infected the seafood market in Wuhan, China, in December with symptoms of pneumonia. The Chinese government officially closed Wuhan on January 23, 2020 because a pandemic has spread and spread to the public. Slowly but surely, the massive pandemic COVID-19 spread to various parts of the world and caused the government to develop an emergency learning policy during the COVID-19 pandemic. The phenomenon related to the perception of online learning will be the main presentation in this research.

In student perception, online learning needs to pay attention to course design, learner motivation, time management, and convenience with online technology (Song et al., 2004). Design online learning courses during a pandemic can use synchronous and asynchronous (Moorhouse, 2020). The teacher teaching with the asynchronous method using PowerPoint media accompanied by voice notes. Form of synchronous instruction using video conferencing software (VCS). The things that can improve understanding of online learning are giving individual assignments, making group discussions group discussions, preliminary explanations related to the material, and structured tasks.

On the other hand, implementing online learning that is so fast and lacking preparation also has an impact on the perception of teaching staff in the transfer of knowledge. Teachers in China understand online when the pandemic COVID-19, among others, the inability to teach online, students and teachers face problems about online learning, the unclear modes of training that fit (Zhang, Li et al., 2020). The material module's preparation also had a correlative impact on the teaching staff (Shohel & Power, 2010).

Methodology

Research Goal

This study uses a qualitative approach to the type of phenomenology. Qualitative research with the kind of phenomenology illustrates the meaning behind some individuals' life experiences about certain concepts or phenomena by exploring the structure of human consciousness. In connection with this research, phenomenology aims to describe students' perception in Indonesia towards the implementation of online learning during the COVID-19 pandemic. The focus of this phenomenological concern is the phenomenon of online learning during the COVID-19 pandemic and the perception of students as first-hand experiences. In other words, phenomenological research seeks

to seek psychological meaning from a student's knowledge of an online learning phenomenon when the COVID-19 pandemic through in-depth analysis in the context of students' daily lives.

Sample and Data Collection

This study uses a purposive sampling technique to determine respondents, where the respondents in this study were students who knew the phenomenon of online learning during the COVID-19 pandemic. This study's subjects were 22 students in Indonesia from four universities, namely Universitas Ahmad Dahlan Yogyakarta, Universitas Muhammadiyah Enrekang West Sulawesi, Universitas Muhammadiyah Pringsewu Lampung, and Universitas Nusantara PGRI Kediri East Java. The student experienced the impact of the COVID-19 pandemic and had to do home learning activities through online learning. Characteristics of students involved in this study are students undergoing online learning due to the COVID-19 pandemic in Indonesia, specifically for students who just have experience in online learning activities. Online learning can be synchronous and asynchronous.

Data collection in this study used in-depth interviews via online synchronous. Researchers obtain information about the experience of students doing online learning and know things hidden deep within the subject of research. It can also ask the research subjects issues relating to cross-time, both past, present, and future. This study uses interview guidelines that accurately identify students' perceptions of online learning during the COVID-19 pandemic. However, the interview guide can be developed according to research needs. Researchers conducted interviews with research subjects informally, interactively, and using open-ended questions. Although there are interview guidelines, the interview process runs according to the research subject's wholeness and condition.

Analyzing of Data

The type of data in this study is primary data from students in several Indonesian Universities. Primary data in this study are the results of in-depth interviews with research subjects. Data analysis activities include analyzing data, organizing data, discovering what is meaningful, and reporting systematically. Specifically, the data analysis in this study used the procedures of eidetic reduction, transcendental reduction, and phenomenological reduction. Credibility and trustworthiness consider several ways. The researcher triangulates with one research assistant and uses notes made during the interview to confirm the statement's truth during the discussion. The reliability of this study uses data triangulation by comparing and checking back the degree of confidence of information through different informants.

Findings / Results

Students Perception and Experiences about Online Learning from Cognitive and Feeling Aspect.

The results of the study described that students' perceptions of online learning during the COVID-19 pandemic were (1) ineffective learning activities; (2) unpleasant learning activities; (3) limit self-actualization in education; (4) helping to become an independent person in learning; and (5) fun learning activities (Table 1).

Table 1 Student perceptions of online learning when the COVID-19 pandemic

No	Classification	Name Code
1	Ineffective learning activities	ol.c19_AM, ol.c19_PC, ol.c19_HA, ol.c19_YA, ol.c19_BD, ol.c19_ST, ol.c19_AW
2	Unpleasant learning activities	ol.c19_ASA, ol.c19_PT, ol.c19_BB, ol.c19_AJ, ol.c19_AB
3	Limit self-actualization in learning	ol.c19_DAW, ol.c19_SM, ol.c19_ARK, ol.c19_MF
4	Helping to become an independent person in learning	ol.c19_AI, ol.c19_PBW, ol.c19_AVP
5	Fun learning activities	ol.c19_RNH, ol.c19_BTW, ol.c19_KF

The first student perception of online learning when the COVID-19 pandemic was to consider online learning as an ineffective learning activity. Online learning activities are not practical because students are not familiar with the online learning model. So, they need to work hard to adapt to the existing situation, which requires them to study online.

Online lectures are very ineffective because not all students listen well to what lecturers convey (ol.c19_AM).

This condition encourages the lack of students' understanding of the material provided by lecturers. Students experience failure in covering material that comes from the teacher. Students lack good self-regulation in learning independently during the COVID-19 pandemic situation even though students need to demand themselves to survive in learning online amid the COVID-19 pandemic.

Lecturers do not provide more detailed explanations when online learning is carried out, unlike face-to-face learning (ol.c19_PC).

One reason students have the perception that online learning is an ineffective learning activity is minimal internet network support. Student limitations on internet access have encouraged lecturers to reduce the duration of the meeting further. Thus, lecturers cannot explain the material in detail and maximally. This condition certainly requires students to learn to be more independent in understanding the material from the lecturers.

The experience is when it is difficult to find signals to do assignments and not understand the lecturers' material (ol.c19_HA).

Students have not received adequate internet support because many students have a place to live in an area that lacks internet support. Students who do not have access to internet signals must try harder to make online learning smooth. This condition arises because not all regions in Indonesia have smooth internet access, especially in remote areas.

The signal is not good because the residence is less strategic and somewhat complicated in carrying out assignments (ol.c19_YA).

Besides, this first perception of students arises because students do not get adequate internet support from universities. Students' perceptions about internet access difficulty encourage students to deteriorate their motivation and interest in trying to survive following the online learning process. In fact, among students, there was also an expectation that lecturers would be willing to tolerate the learning process that was not optimal.

The university's internet quota is of no use because the lecturer does not use an appropriate platform (ol.c19_BD).

This condition encourages students to buy internet quota independently to take part in online learning. While students' financial situation is not the same, some students are in the able category, but some students are in the group of underprivileged. Students hope that the government can make policies that facilitate their needs and circumstances, especially those that optimally support their learning activities.

The impact of COVID-19 affects the family's economic income. (ol.c19_ST).

No one can deny that the COVID-19 pandemic has had many impacts on student parents' economic level. This condition positively impacts parents' fighting power and purchasing power in facilitating their children to learn online. Parents of students desire and hope that the COVID-19 pandemic conditions will soon improve and students can learn face-to-face. Students in Indonesia are not familiar with the learning model using online learning. Students prefer and are comfortable with face-to-face learning.

Online lectures are not useful, I can better understand lecture material with face-to-face learning (ol.c19_AW).

The feelings of these students emerge because lecturers usually do face-to-face learning. Thus, when the situation requires them to do online learning, they cannot implement it. Students need time to prepare and adapt to the implementation of online learning. Students need to demand themselves to stay behind the situation of the COVID-19 pandemic. Thus, students can still take the meaning behind the learning material from the lecturer.

Second, students' perceptions of online learning emerge when the COVID-19 pandemic considers online learning an unpleasant learning activity. Moreover, online learning implementation seems sudden, and lecturers are obliged to implement it due to COVID-19. Students yearn for face-to-face learning situations that are dynamic and full of challenges and new things.

I feel upset, tired, sad, and so on. Besides, sometimes it makes me frustrated. It was not fun, and the task made me depressed (ol.c19_ASA).

This condition arises because students feel online learning activities are not like regular learning. They are free to express themselves, and dynamics in learning activities are also dynamic. Unlike online learning, everything is limited, so the humor in education is also minimal. These limitations in online learning make students feel bored with online learning activities. Errors in implementing online learning in Indonesia cause unpleasant perceptions of students towards online learning.

I felt burdened by tasks for which the collection time is only given a deadline of a few hours. Online learning, but the reality is online assignments (ol.c19_PT).

This implementation error led to the emergence of wrong perceptions of the implementation of online learning itself. Students get a load of assignments in which deadlines also don't make sense. Lecturers also do not provide detailed explanations before giving homework to students. As a result, students have a terrible perception of online learning, which decreases their motivation and enthusiasm for learning.

In my opinion, it is complicated to understand the material through online lectures because the lecturer gives more assignments, but the way to deliver the material is significantly less (ol.c19_BB).

Students feel they do not get adequate rights to the material from the lecturers. They think that online learning activities are not appropriate for existing theories and guidelines. However, students get more assignments that burden them a lot. Lectures conducted by lecturers suddenly also encourage the emergence of wrong perceptions of online learning.

During the online conference, the lecturer did it swiftly, and there was no notice in advance. So, if we miss the information, we will not be able to attend the lecture (ol.c19_AJ).

Though students expect structured learning following the beginning, students can't arrange a time to do the learning process if a sudden online conference without any preparation. What's more, they need time and strategy to prepare to attend online learning activities for online learning. Students express unpleasant feelings towards online learning in various ways.

I can study online by lying down. It seems to be able to guess how I feel right now. Study while lying down from the task of humanizing humans (ol.c19_AB).

Unpleasant feelings of students when attending online learning will encourage them to learn not seriously. Their motivation in conducting the learning process through online learning also declined. They realize that his behavior will cost him many opportunities for achievement. However, they also have feelings of frustration with new habits in the learning process, namely online learning. It turns out that distance learning through online learning is not as fun as what they imagine.

Third, students' perceptions of online learning emerge when the COVID-19 pandemic considers online learning as an activity that limits self-actualization in education. Students lack freedom in learning material from lecturers. Responsible space is one of the human needs. Students' freedom of interaction with other students and lecturers encourages the decline in student self-actualization in learning in class.

I am not free to respond and get responses from friends because time and opportunities are also limited. I have difficulty asking (ol.c19_DAW).

Students want the freedom of learning as much as they get it when face-to-face learning. The dynamics that arise in face-to-face education make students gain knowledge from lecturer material. Limited communication causes students to not actualize themselves optimally in online learning. Students want a convenient interface when they study.

I am less effective in communicating with lecturers when online learning. I feel worried about my understanding of the material I get from online learning activities (ol.c19_SM).

Ineffective communication between students and lecturers causes students to worry about their understanding of the material from lecturers. Ineffective communication has the opportunity for misperceptions between lecturers and students to the material presented. Of course, this condition is not desired by students, considering the lecturers' material is a valuable provision for students when going into society to apply their knowledge. Thus, students need to have a high concentration when the learning process takes place.

I need high concentration to understand the material (ol.c19_ARK).

Students need high concentration when participating in online learning activities. Students need a higher level because they want to comprehend material from lecturers comprehensively. Thus, students do not get low grades when examinations. Students realize that they have to make more effort to survive during the COVID-19 pandemic. Students want to learn to return to everything as soon as possible.

I don't like online learning. I want the government to handle the COVID-19 pandemic successfully. So, we can conduct learning activities face to face. I can only absorb a little material with online learning methods. I want to lecture face to face (ol.c19_MF).

Based on these statements, they show that students want to be able to actualize themselves optimally in learning. They want face-to-face learning because they want to catch up with the material during the COVID-19 pandemic. Students miss the atmosphere and dynamics of face-to-face learning, and they get a lot of experience from these activities.

The fourth student's perception of online learning when the COVID-19 pandemic is considering online learning as an activity that helps become an independent person in education. Students need to demand themselves to learn independently behind the limitations of lecturers in providing dynamic and meaningful learning. Therefore, students can still achieve their learning goals.

During this online lecture process, I became more independent to study independently and made me more diligent in reading books (ol.c19_AI).

Students demonstrate this because students have an awareness of their current position. They are in a COVID-19 emergency. However, on the other hand, they still have to fulfill the responsibility, which is learning. This responsibility effort arises because students feel they need materials in lecture activities, which will have benefits when they enter

the world of work. Without an awareness of this responsibility, students find it difficult to organize themselves in online learning activities. Students also think of alternatives to addressing the COVID-19 emergency.

If indeed I cannot learn face-to-face, like it or not, I have to adjust to online learning. Online learning is engaging. It's like in developed countries (ol.c19_PBW).

Therefore, students try to enjoy the problematic situation behind the COVID-19 pandemic. Students also learned the wisdom behind the COVID-19 pandemic situation. They have an effort to see the disaster from the bright side while still undergoing the learning process in a fun way. When students find it difficult initially, they need to adjust to the new normal in education, namely online learning.

I am grateful to be able to study even though online. This lecture is better than nothing. We must also condition each of us to absorb the material properly (ol.c19_AVP).

These statements reveal that students still have a sense of gratitude and optimism that there must be a convenience in the future behind the difficulties in the present. Gratitude and confidence are what drive students to remain disciplined and independent in learning. Students have the belief that with a separate study, they can survive the COVID-19 pandemic situation. They also believe that there will be many lessons behind the COVID-19 pandemic when they can still demonstrate independent learning.

Fifth, students' perceptions of online learning emerged during the COVID-19 pandemic, which considered online learning as a fun activity. Students have new experiences about implementing online learning during the COVID-19 pandemic. They also learn many new things through online learning. So that students have more motivation in learning activities.

I am happy to be able to study online because I don't need to go to campus. I don't need to go to campus because I can learn from home. I don't need to spend a lot of money to travel (ol.c19_RNH).

Not many students think that online learning is a fun learning activity. Feelings of joy arise in students because students realize that they can do learning activities from home do not have to come to campus. This situation indeed became one of the unique and exciting experiences that they had never experienced before. Also, students consider online learning as a new challenge.

At first online learning was difficult, but if it can work around this, online learning is fun learning (ol.c19_BTW).

Online learning activities are a new experience for students. Therefore, they feel natural if at first, they experience many obstacles and difficulties. However, they also believe that over time they can adapt and manipulate the problems that arise due to implementing online learning. They realized that they needed to pump up their enthusiasm to stay behind the difficulties of learning situations during the COVID-19 pandemic.

It is natural that it is difficult at first, but if it succeeds in defeating the problematic situation, learning becomes more comfortable (ol.c19_KF).

If you view these statements, you can conclude that students need more fighting spirit and habituation. This habit will encourage students to be able to overcome difficult situations when online learning. This condition is evidence that online learning is a not fun activity between lecturers and students that can create emotional problems in lectures.

The Meaning of Perception of Online Learning from Cognitive and Feeling Aspects

The study results found that lecturers and students haven't adapted to the online learning system. Self-regulated learning and students' learning independence in online learning isn't optimal compared to face-to-face learning. This condition is influenced by support online learning about internet access in certain areas in Indonesia and depressed parents' income due to the COVID-19 pandemic. The declining income of parents to buy internet quota affects students' access to learning. That is the condition of the cognitive aspects of students regarding the perspective of online learning.

In addition to cognitive aspects, there are differences in aspects of students' feelings about online learning. Some students find online learning fun, and some students find it unpleasant. Some students feel that online learning isn't fun because the online learning process lacks two-way communication and can't express it, so they can't concentrate. Students feel that online learning provides more assignments than face-to-face learning. This condition gives students self-actualization limits, especially practicum courses, in contrast to some students who find online learning fun. This condition is a form of gratitude for preventing the spread of COVID-19 and optimism for recovery from the COVID-19 pandemic.

Research Results Facts vs General Conditions of Online Learning during the COVID-19 Pandemic

In general, students' perceptions of online learning aren't pleasant in the process. First, the main support for online learning is internet access or network, while not all regions in Indonesia have good internet access or network or 4G. The second is parents' income because they are depressed due to the COVID-19 pandemic, or parents of students who are fired greatly affect student funding for studies or facilitating online learning. These two conditions have a major impact on research results on the perspective of online learning on cognitive and emotional aspects.

The two factors of parental income and uneven internet access in various parts of Indonesia have made the government also adapt. The Indonesian government's adaptation to facilitate online learning is the acceleration of internet access infrastructure. The acceleration of internet access infrastructure from the Indonesian government affects student adaptation in online learning, self-regulated online learning, and online learning independence. The perspective of students in online learning on the cognitive aspect concludes that students must be able to adapt, increase self-regulated online learning, and learn independence online.

Learning is fun learning if students can actualize themselves. These two inhibiting factors for online learning have an impact on students' feelings about online learning. Students feel that online learning isn't fun because they can't express themselves and lack two-way communication between lecturers and students. The impact of not or lack of ability for students to express themselves is self-actualization, limited by online space. Online learning is the right solution to prevent and effectively spread the COVID-19 Virus. Still, it can't maximize it due to infrastructure that is not fully prepared and difficulties in adapting.

Discussion

The tertiary institution applies online learning to support the government in breaking the chain of distribution of COVID-19. Online learning is not new for lecturers and students, but they have not yet gotten used to implementing online learning in full. Thus, the implementation of online learning has led to a variety of different perceptions. Student perceptions of online learning are (1) ineffective learning activities; (2) unpleasant learning activities; (3) limit self-actualization in education; (4) helping to become an independent person in learning; and (5) fun learning activities.

The first perception, students consider online learning during the COVID-19 pandemic as an ineffective activity. Not all students have the ability to access online learning smoothly. Thus, the migration of face-to-face learning towards online learning can be disastrous for students because they have difficulty adjusting to technology. (Hodges et al., 2020). Technology can support the success of an educational endeavor, but it cannot replace the role of an educator.

The results of research in Indonesia show that online learning or e-learning in Indonesia are projects that tend to be new, and student participation tends to be small (Kuntoro & Al-Hawamdeh, 2003). Various parties must make more serious efforts to increase the effectiveness of the use of e-learning to support learning activities in tertiary institutions (Padmo et al., 2017). In Indonesia, online learning activities need a more in-depth study so that the events become more attractive. Thus, online learning can have a significant impact on students (Luschei et al., 2008).

Educators are not ready to adjust to the challenges of the tutoring era to contribute to the ineffectiveness of online learning. They are used to the old mindset formed from the traditional education system (Sari, 2012). This situation makes teaching staff in higher education tend to make many mistakes in implementing online learning. The impact is students lack understanding of lecture material and fail to get content following learning objectives.

Indicators of online learning success can be seen from three aspects, namely student involvement, self-regulation practices, and student satisfaction (Pellas, 2014). First, student involvement is essential as one aspect that supports the effectiveness of online learning practices (Czerkawski & Lyman, 2016; Dixson, 2015). Without student involvement, lecturers are less able to maximize online learning practices. Second, students who have good self-management tend to be more successful in understanding material than students who lack good self-management. Student self-management is the key to the effectiveness of online learning practices (Lee et al., 2015; Wandler & Imbriale, 2017). Third, student satisfaction also determines the success of online learning practices (Tratnik et al., 2019). If the lecturer can do unusual online learning practices, then students tend to have high satisfaction.

The other perception, students consider online learning during the COVID-19 pandemic as an unpleasant activity. This perception is in contrast to various theories that state that online learning must raise a fun theme. Students who take online learning classes feel less of a lower-level social presence compared to students who take face-to-face classes (Zhan & Mei, 2013). They do not feel the humor like in the classroom learning face to face. Students also do not have the support of their peers when they try to actualize themselves in online learning classes. The results of the study also showed that teamwork and team performance in online learning was lower than in face-to-face courses (Jenner et al., 2010).

The unpleasant perception of students towards online learning also has to do with the difficulty of lecturers in implementing online learning. Lecturers as educators have various challenges in implementing online learning, so that it raises the involvement and low academic performance in students (Loh & Smyth, 2010; Shi et al., 2010). The problem

that often arises is that lecturers provide online assignments, not online learning activities. This condition gives rise to unpleasant feelings towards students towards online learning.

Not all students are ready to do online learning. Various literature states that online learning is a new learning model that is believed to support the academic success of students. However, online learning is an activity that hinders students' academic development. Students have economic limitations, especially the cost of internet access (Muilenburg & Berge, 2005). Online learning activities become something expensive for them because it is difficult to access them.

Student's displeasure towards online learning did not have a significant impact on improving academic achievement. The results of the study showed that there was no significant difference between the learning outcomes of students taking online learning classes and traditional classes (DiRienzo & Lilly, 2014; Stack, 2015). Online learning results in worse learning outcomes compared to conventional learning (Wilson & Allen, 2011).

The third perception, students consider online learning during the COVID-19 pandemic as an activity that limits self-actualization in education. Students have limitations in being able to engage in online learning activities. Online learning also defines the time students and lecturers interact with each other properly in face-to-face lectures (Muilenburg & Berge, 2005; Song et al., 2004). Social presence from peers can support meaningful learning for students (Hayashi et al., 2020; Poquet et al., 2018; Zhan & Mei, 2013).

Students do not get the ideal desire, which is getting more in-depth material (Holzweiss et al., 2014). Lecturers are not able to plan meaningful online learning activities and encourage student self-actualization in learning. Students become objects of education and not as subjects of education. The mutual interaction between lecturers and students should be able to motivate students to actualize themselves in learning and achieve optimal academic achievement (Fedynich et al., 2015).

The fourth perception, students consider online learning during the COVID-19 pandemic as an activity that helps become an independent person in education. Students have an intrinsic motivation to follow online learning (Hartnett et al., 2011). Evidenced by the results of research that shows that students who take online learning classes have higher academic performance than students who take classes face to face (Shachar & Neumann, 2010). Lecturers facilitate students to be able to study independently and supervised. Therefore, students feel comfortable with the learning styles applied by the lecturer.

Lecturers conduct online learning with student-centered strategies and maximize student self-regulation (De Gagne & Walters, 2010). Each individual has different self-regulation abilities (Saputra et al., 2021). Many experts call this method as a self-regulated learning strategy (Karabenick & Berger, 2013; Pintrich & De Groot, 1990). The self-regulated learning strategy in online learning in tertiary institutions has proven to be effective in increasing academic achievement (Broadbent & Poon, 2015). This strategy builds students' perception that online learning activities during the COVID-19 pandemic can encourage students to become independent individuals in learning.

Students approve the online learning model because they believe that online learning is a learning activity that can support academic achievement (Song et al., 2004). Online learning does have constraints such as technical problems, students' adverse perceptions of online learning, and time constraints. However, these various obstacles do not diminish the benefits of online learning when students use it well and optimally.

The fifth perception, students consider online learning during the COVID-19 pandemic as a fun activity. This perception arises because students have satisfaction with the implementation of online learning, both done asynchronously and synchronously. Lecturers facilitate online learning activities with fun and challenging methods. So, students can get out of boredom and fatigue with the COVID-19 pandemic situation (Somenarain et al., 2010).

Lecturers who can plan an excellent online learning strategy can encourage the emergence of feelings of pleasure for students in following it. This strategy can be done with a variety of innovative approaches, for example, with virtual games (Louis, 2013), streaming video strategy (Tantrarungroj & Lai, 2011), and self-regulated learning strategy (Broadbent & Poon, 2015). These creative methods can increase student involvement in online learning practices and increase student academic achievement.

The online learning method is one of the most influential factors on students' perceptions of online learning during the COVID-19 pandemic in Indonesia. The lecturers' creativity determines whether students can accept or not practice online learning (Jahnke, 2011; Turvey, 2006). Lecturers need to sort out the most appropriate and possible online learning strategies and online learning media for students. Moreover, students in Indonesia have diverse social, cultural, and economic backgrounds. Lecturers must be able to determine policies appropriately so that students are also able to learn effectively through online learning (Mace, 2015). Thus, students can achieve optimal academic achievement during the COVID-19 pandemic.

Conclusion

Pandemic COVID-19 changes the paradigm of the education sector in Indonesia to implement online learning. This condition is far different from face-to-face learning, where lecturers and students can express themselves in learning activities to the full. In online learning, lecturers and students must adjust to various limitations, such as time, dynamics of education, to the interaction between students and lecturers. Students have diverse perceptions of the implementation of online learning during the COVID-19 pandemic in Indonesia. Students who have positive thoughts consider online learning as a fun activity and can make individuals more independent in learning. While students who think negatively view online learning as an ineffective, unpleasant activity, and even limit students to actualize themselves.

Recommendations

This finding should encourage educational institutions to develop standard operating procedures for implementing online learning that is of interest to students. Thus, lecturers and students can achieve achievements following the provisions.

This study also recommends that further researchers conduct research and develop a product in the form of a system with a technology and informatics base that can help lecturers and students carry out more systematic and fun online learning activities. This product aims to facilitate students to increase their motivation and learning achievement.

Limitations

This research has limitations, namely that it only involves respondents from four universities, namely Universitas Ahmad Dahlan Yogyakarta, Universitas Muhammadiyah Enrekang West Sulawesi, Universitas Muhammadiyah Pringsewu Lampung, and Universitas Nusantara PGRI Kediri East Java. Thus, the research results may not be able to reach a broader range of respondents in Indonesia. Besides, this study has limitations that only uses data triangulation, in which data is obtained through an interview process with several respondents.

Acknowledgements

We would like to thank the various parties who supported this research. Some of these parties are the Ministry of Research and Technology/ National Research and Innovation Agency of the Republic of Indonesia and Universitas Ahmad Dahlan. They have provided the opportunity to carry out this research.

Authorship Contribution Statement

Purwadi: Conceptualization and design of the research. Wahyu Nanda Eka Saputra: Analysis, writing, and supervision of the research. Amien Wahyudi: Field team leader of the research. Agus Supriyanto: Editing/reviewing and supervision of the research. Siti Muyana: Editing/reviewing and supervision of the research. Prima Suci Rohmadheny: Proofreading the article. Restu Dwi Ariyanto: Analysis of the data of the research. Shopyan Jepri Kurniawan: Research field team.

References

- Aitken, G. (2020). A postdigital exploration of online postgraduate learning in healthcare professionals: a horizontal conception. *Postdigital Science and Education*, 3, 1–17. <https://doi.org/10.1007/s42438-020-00103-w>
- Auster, C. J. (2016). Blended learning as a potentially winning combination of face-to-face and online learning: An exploratory study. *Teaching Sociology*, 44(1), 39–48. <https://doi.org/10.1177/0092055X15619217>
- Bai, Y., Yao, L., Wei, T., Tian, F., Jin, D.-Y., Chen, L., & Wang, M. (2020). Presumed asymptomatic carrier transmission of COVID-19. *Jama*, 323(14), 1406–1407. <https://doi.org/10.1001/jama.2020.2565>
- Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, 27, 1–13. <https://doi.org/10.1016/j.iheduc.2015.04.007>
- Cobb, S. C. (2009). Social presence and online learning: A current view from a research perspective. *Journal of Interactive Online Learning*, 8(3), 241–254.
- Czerkawski, B. C., & Lyman, E. W. (2016). An instructional design framework for fostering student engagement in online learning environments. *TechTrends*, 60(6), 532–539. <https://doi.org/10.1007/s11528-016-0110-z>
- Darmaji, D., Kurniawan, D. A., Astalini, A., Lumbantoruan, A., & Samosir, S. C. (2019). Mobile learning in higher education for the industrial revolution 4.0: Perception and response of physics practicum. *International Journal of Interactive Mobile Technologies*, 13(09), 4–20. <https://doi.org/10.3991/ijim.v13i09.10948>

- De Gagne, J. C., & Walters, K. J. (2010). The lived experience of online educators: Hermeneutic phenomenology. *Journal of Online Learning and Teaching*, 6(2), 357–366.
- DiRienzo, C., & Lilly, G. (2014). Online versus face-to-face: Does delivery method matter for undergraduate business school learning? *Business Education & Accreditation*, 6(1), 1–11.
- Dixson, M. D. (2015). Measuring student engagement in the online course: The Online Student Engagement scale (OSE). *Online Learning*, 19(4), 1-15. <https://doi.org/10.24059/olj.v19i4.561>
- Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2018). Blended learning: The new normal and emerging technologies. *International Journal of Educational Technology in Higher Education*, 15(3), 1-16. <https://doi.org/10.1186/s41239-017-0087-5>
- Esler, M., & Esler, D. (2020). Can angiotensin receptor-blocking drugs perhaps be harmful in the COVID-19 pandemic? *Journal of Hypertension*, 38(5), 781–782. <https://doi.org/10.1097/HJH.0000000000002450>
- Fedynich, L., Bradley, K. S., & Bradley, J. (2015). Graduate students' perceptions of online learning. *Research in Higher Education Journal*, 27, 1-13.
- Galea, S., Merchant, R. M., & Lurie, N. (2020). The mental health consequences of COVID-19 and physical distancing: The need for prevention and early intervention. *JAMA Internal Medicine*, 180, (6), 817-818. <https://doi.org/10.1001/jamainternmed.2020.1562>
- Grover, S., Dua, D., Sahoo, S., Mehra, A., Nehra, R., & Chakrabarti, S. (2020). Why all COVID-19 hospitals should have mental health professionals: The importance of mental health in a worldwide crisis! *Asian Journal of Psychiatry*, 51, 102147. <https://doi.org/10.1016/j.ajp.2020.102147>
- Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American Journal of Distance Education*, 11(3), 8–26. <https://doi.org/10.1080/08923649709526970>
- Hartnett, M., St George, A., & Dron, J. (2011). Examining motivation in online distance learning environments: Complex, multifaceted, and situation-dependent. *International Review of Research in Open and Distributed Learning*, 12(6), 20–38. <https://doi.org/10.19173/irrodl.v12i6.1030>
- Hayashi, A., Chen, C., Ryan, T., & Wu, J. (2020). The role of social presence and moderating role of computer self efficacy in predicting the continuance usage of e-learning systems. *Journal of Information Systems Education*, 15(2), 139-154. <https://doi.org/10.19173/irrodl.v12i6.1030>
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*, 27, 1-12.
- Holzweiss, P. C., Joyner, S. A., Fuller, M. B., Henderson, S., & Young, R. (2014). Online graduate students' perceptions of best learning experiences. *Distance Education*, 35(3), 311–323. <https://doi.org/10.1080/01587919.2015.955262>
- Huda, M., Maselena, A., Atmotiyoso, P., Siregar, M., Ahmad, R., Jasmi, K., & Muhamad, N. (2018). Big data emerging technology: Insights into innovative environment for online learning resources. *International Journal of Emerging Technologies in Learning*, 13(1), 23–36. <https://doi.org/10.3991/ijet.v13i01.6990>
- Jahnke, I. (2011). How to Foster Creativity in Technology Enhanced Learning? In B. White, I. King & P. Tsang (Eds.), *Social media tools and platforms in learning environments* (pp. 95–116). Springer. https://doi.org/10.1007/978-3-642-20392-3_6
- Jarvis, C. I., Van Zandvoort, K., Gimma, A., Prem, K., Klepac, P., Rubin, G. J., & Edmunds, W. J. (2020). Quantifying the impact of physical distance measures on the transmission of COVID-19 in the UK. *BMC medicine*, 18, 1-10. <https://doi.org/10.1186/s12916-020-01597-8>
- Jenner, S., Zhao, M., & Foote, T. H. (2010). Teamwork and team performance in online simulations: The business strategy game. *Journal of Online Learning and Teaching*, 6(2), 416-430.
- Karabenick, S. A., & Berger, J.-L. (2013). Help seeking as a self-regulated learning strategy. In H. Bembenuddy, T. J. Cleary & A. Kitsantas (Eds.), *Applications of self-regulated learning across diverse disciplines: A tribute to Barry J. Zimmerman* (p. 237–261). IAP Information Age Publishing.
- Kuntoro, R. D., & Al-Hawamdeh, S. (2003). E-learning in higher educational institutions in Indonesia. *Journal of Information & Knowledge Management*, 2(04), 361–374. <https://doi.org/10.1142/S0219649203000553>
- Lee, B.-C., Yoon, J.-O., & Lee, I. (2009). Learners' acceptance of e-learning in South Korea: Theories and results. *Computers & Education*, 53(4), 1320–1329. <https://doi.org/10.1016/j.compedu.2009.06.014>

- Lee, E., Pate, J. A., & Cozart, D. (2015). Autonomy support for online students. *TechTrends*, 59(4), 54–61. <https://doi.org/10.1007/s11528-015-0871-9>
- Lee, H., Chang, H., & Bryan, L. (2020). Doctoral students' learning success in online-based leadership programs: intersection with technological and relational factors. *The International Review of Research in Open and Distributed Learning*, 21(1), 61–81. <https://doi.org/10.19173/irrodl.v20i5.4462>
- Lee, S. J., Ngampornchai, A., Trail-Constant, T., Abril, A., & Srinivasan, S. (2016). Does a case-based online group project increase students' satisfaction with interaction in online courses? *Active Learning in Higher Education*, 17(3), 249–260. <https://doi.org/10.1177/1469787416654800>
- Lin, Y.-T. (2019). Impacts of a flipped classroom with a smart learning diagnosis system on students' learning performance, perception, and problem solving ability in a software engineering course. *Computers in Human Behavior*, 95, 187–196. <https://doi.org/10.1016/j.chb.2018.11.036>
- Liu, Y.-H., Kwon, K., & Johnson, L. P. (2018). Exploration of factors in the early collaboration phase affecting virtual groups' overall collaborative learning experiences. *Journal of Educational Computing Research*, 56(4), 485–512. <https://doi.org/10.1177/0735633117715034>
- Loh, J., & Smyth, R. (2010). Understanding students' online learning experiences in virtual teams. *Journal of Online Learning and Teaching*, 6(2), 335–342.
- Louis, R. (2013). *A descriptive case study of meaningful online learning experiences in the 3D virtual game "Quest Atlantis"* [Unpublished master's thesis]. University of Calgary. <https://doi.org/10.11575/PRISM/24708>
- Luschei, T. F., Dimiyati, S., & Padmo, D. (2008). Maintaining e3-learning while transitioning to online instruction: The case of the Open University of Indonesia. *Distance Education*, 29(2), 165–174. <https://doi.org/10.1080/01587910802154962>
- Mace, D. H. P. (2015). *Teacher practice online: Sharing wisdom, opening doors*. Teachers College Press.
- Maddix, M. A. (2013). Developing Online Learning Communities1. *Christian Education Journal*, 10(1), 139–148. <https://doi.org/10.1177/073989131301000111>
- Mehta, P., McAuley, D. F., Brown, M., Sanchez, E., Tattersall, R. S., & Manson, J. J. (2020). COVID-19: Consider cytokine storm syndromes and immunosuppression. *The Lancet*, 395(10229), 1033–1034. [https://doi.org/10.1016/S0140-6736\(20\)30628-0](https://doi.org/10.1016/S0140-6736(20)30628-0)
- Mizumoto, K., Kagaya, K., Zarebski, A., & Chowell, G. (2020). Estimating the asymptomatic proportion of coronavirus disease 2019 (COVID-19) cases on board the Diamond Princess Cruise Ship, Yokohama, Japan, 2020. *Eurosurveillance*, 25(10), 1-5. <https://doi.org/10.2807/1560-7917.ES.2020.25.10.2000180>
- Moorhouse, B. L. (2020). Adaptations to a face-to-face initial teacher education course 'forced' online due to the COVID-19 pandemic. *Journal of Education for Teaching*, 46(4), 609-611. <https://doi.org/10.1080/02607476.2020.1755205>
- Muilenburg, L. Y., & Berge, Z. L. (2005). Student barriers to online learning: A factor analytic study. *Distance Education*, 26(1), 29–48. <https://doi.org/10.1080/01587910500081269>
- Özhan, Ş. Ç., & Kocadere, S. A. (2020). The effects of flow, emotional engagement, and motivation on success in a gamified online learning environment. *Journal of Educational Computing Research*, 57(8), 2006–2031. <https://doi.org/10.1177/0735633118823159>
- Padmo, D., Belawati, T., Idrus, O., & Ardiasih, L. S. (2017). The state of practice of mobile learning in Universitas Terbuka Indonesia. In A. Murphy, H. Farley, L. Dyson & Jones H. (Eds.), *Mobile Learning in Higher Education in the Asia-Pacific Region* (pp. 173–190). Springer. https://doi.org/10.1007/978-981-10-4944-6_9
- Pellas, N. (2014). The influence of computer self-efficacy, metacognitive self-regulation and self-esteem on student engagement in online learning programs: Evidence from the virtual world of Second Life. *Computers in Human Behavior*, 35, 157–170. <https://doi.org/10.1016/j.chb.2014.02.048>
- Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82(1), 33-40. <https://doi.org/10.1037/0022-0663.82.1.33>
- Poquet, O., Kovanović, V., de Vries, P., Hennis, T., Joksimović, S., Gašević, D., & Dawson, S. (2018). Social presence in massive open online courses. *International Review of Research in Open and Distributed Learning*, 19(3). 43-68. <https://doi.org/10.19173/irrodl.v19i3.3370>

- Saputra, W. N. E., Mappiare-AT, A., Hidayah, N., Ramli, M., & Triyono. (2021). KH Ahmad Dahlan's the values of peace in the novel entitled Sang Pencerah: A hermeneutics study. *Pegegog Journal of Education and Instruction*, 11(2), 32-42. <https://doi.org/10.14527/pegegog.2021.04>
- Sari, E. R. (2012). Online learning community: A case study of teacher professional development in Indonesia. *Intercultural Education*, 23(1), 63-72. <https://doi.org/10.1080/14675986.2012.664755>
- Shachar, M., & Neumann, Y. (2010). Twenty years of research on the academic performance differences between traditional and distance learning: Summative meta-analysis and trend examination. *MERLOT Journal of Online Learning and Teaching*, 6(2), 318-334.
- Shi, S., Mishra, P., Bonk, C. J., & Tan, S. (2010). Teacher moderating and student engagement in synchronous computer conferences. *MERLOT Journal of Online Learning and Teaching*, 6(2), 431-445.
- Shohel, M. M. C., & Power, T. (2010). Introducing mobile technology for enhancing teaching and learning in Bangladesh: Teacher perspectives. *Open Learning: The Journal of Open, Distance and e-Learning*, 25(3), 201-215. <https://doi.org/10.1080/02680513.2010.511953>
- Singhal, T. (2020). A review of coronavirus disease-2019 (COVID-19). *The Indian Journal of Pediatrics*, 28, (4), 1-6. <https://doi.org/10.1007/s12098-020-03263-6>
- Smart, K. L., & Cappel, J. J. (2006). Students' perceptions of online learning: A comparative study. *Journal of Information Technology Education: Research*, 5(1), 201-219. <https://doi.org/10.28945/243>
- Somenarain, L., Akkaraju, S., & Gharbaran, R. (2010). Student perceptions and learning outcomes in asynchronous and synchronous online learning environments in a biology course. *MERLOT Journal of Online Learning and Teaching*, 6(2), 353-356.
- Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The Internet and Higher Education*, 7(1), 59-70. <https://doi.org/10.1016/j.iheduc.2003.11.003>
- Stack, S. (2015). Learning Outcomes in an online vs traditional course. *International Journal for the Scholarship of Teaching and Learning*, 9(1), 1-18. <https://doi.org/10.20429/ijstol.2015.090105>
- Tantrarungroj, P., & Lai, F.-Q. (2011). Effect of embedded streaming video strategy in an online learning environment on the learning of neuroscience. *International Journal of Learning*, 17(11), 17-28.
- Tasir, Z., & Al-Dheleai, Y. (2019). Web 2.0 for fostering students' social presence in online learning-based interaction. *JOTSE: Journal of Technology and Science Education*, 9(1), 13-19. <https://doi.org/10.3926/jotse.552>
- Tratnik, A., Urh, M., & Jereb, E. (2019). Student satisfaction with an online and a face-to-face Business English course in a higher education context. *Innovations in Education and Teaching International*, 56(1), 36-45. <https://doi.org/10.1080/14703297.2017.1374875>
- Tu, C.-H., & Mclsaac, M. (2002). The relationship of social presence and interaction in online classes. *The American Journal of Distance Education*, 16(3), 131-150. https://doi.org/10.1207/S15389286AJDE1603_2
- Turabian, J. L. (2020). Implications on mental health by the coronavirus disease 2019 (COVID-19) pandemic: The role of general practitioner. *Health*, 7(8), 35-41. <https://doi.org/10.29328/journal.apmh.1001016>
- Turvey, K. (2006). Towards deeper learning through creativity within online communities in primary education. *Computers & Education*, 46(3), 309-321. <https://doi.org/10.3926/jotse.552>
- Wandler, J. B., & Imbriale, W. J. (2017). Promoting Undergraduate Student Self-Regulation in Online Learning Environments. *Online Learning*, 21(2), 1-16. <https://doi.org/10.24059/olj.v21i2.881>
- Wang, G., Zhang, Y., Zhao, J., Zhang, J., & Jiang, F. (2020). Mitigate the effects of home confinement on children during the COVID-19 outbreak. *The Lancet*, 395(10228), 945-947. [https://doi.org/10.1016/S0140-6736\(20\)30185-9](https://doi.org/10.1016/S0140-6736(20)30185-9)
- Wilson, D., & Allen, D. (2011). Success rates of online versus traditional college students. *Research in Higher Education Journal*, 14, 1-9.
- Wiretna, C. D., Saputra, W. N. E., Muarifah, A., & Barida, M. (2020). Effectiveness of Solution-Focused Brief Counseling to Reduce Online Aggression of Student. *Universal Journal of Educational Research*, 8(3), 1092-1099. <https://doi.org/10.13189/ujer.2020.080344>
- Wise, A., Chang, J., Duffy, T., & Del Valle, R. (2004). The effects of teacher social presence on student satisfaction, engagement, and learning. *Journal of Educational Computing Research*, 31(3), 247-271. <https://doi.org/10.2190/V0LB-1M37-RNR8-Y2U1>

- Yeo, C., Kaushal, S., & Yeo, D. (2020). Enteric involvement of coronaviruses: Is faecal–oral transmission of SARS-CoV-2 possible? *The Lancet Gastroenterology & Hepatology*, 5(4), 335–337. [https://doi.org/10.1016/S2468-1253\(20\)30048-0](https://doi.org/10.1016/S2468-1253(20)30048-0)
- Zhan, Z., & Mei, H. (2013). Academic self-concept and social presence in face-to-face and online learning: Perceptions and effects on students' learning achievement and satisfaction across environments. *Computers & Education*, 69, 131–138. <https://doi.org/10.1016/j.compedu.2013.07.002>
- Zhang, S., & Liu, Q. (2019). Investigating the relationships among teachers' motivational beliefs, motivational regulation, and their learning engagement in online professional learning communities. *Computers & Education*, 134, 145–155. <https://doi.org/10.3390/jrfm13030055>
- Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). *Suspending classes without stopping learning: china's education emergency management policy in the COVID-19 outbreak*. Multidisciplinary Digital Publishing Institute.
- Zhang, Z., Li, Z., Liu, H., Cao, T., & Liu, S. (2020). Data-driven online learning engagement detection via facial expression and mouse behavior recognition technology. *Journal of Educational Computing Research*, 58(1), 63–86. <https://doi.org/10.1177/0735633119825575>
- Zheng, Y.-Y., Ma, Y.-T., Zhang, J.-Y., & Xie, X. (2020). COVID-19 and the cardiovascular system. *Nature Reviews Cardiology*, 17(5), 259–260. <https://doi.org/10.1038/s41569-020-0360-5>