THE PERCEPTION OF INDONESIAN HIGHER EDUCATION STUDENTS TOWARD ONLINE LEARNING DURING COVID-19 PANDEMIC

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ABSTRACT

In the 21st century, the teaching and learning process can be done digitally through online learning. During the COVID-19 pandemic, online learning became mandatory in Indonesia, especially in higher education. This article aimed at analyzing Indonesia's higher students' perceptions towards online learning amid the COVID-19 pandemic. The data in this article were collected and analyzed through the library research model proposed by George. The data sources were collected from various journals by considering six criteria. Thirty-two articles related to students' perception of online learning during the COVID-19 pandemic were collected and analyzed by reading, understanding, and grouping the students' perceptions. The results found four positive perceptions towards online learning: flexibility, availability of learning material, motivation, and variations of online platforms. The significant advantage which was felt by the higher education students towards online learning was its flexibility. Online learning made the students able to learn at any time and anywhere. The negative perceptions towards online learning were related to internet access, unstable internet connection, lack of interaction, ineffective instruction, and health issues. The significant disadvantages caused by online learning were internet connection and signal strength. An unstable internet connection and signal strength made the students feel uncomfortable while learning through online learning.

Keywords: COVID-19, Indonesian higher education students, online learning, perception

INTRODUCTION

The COVID-19 pandemic led the teaching and learning process to shift into online learning. First detected in Indonesia around March 2020, COVID-19 affected all aspects of life (Adnan & Anwar, 2020; Lebni et al., 2024; Nandal et al., 2024; Naveed et al., 2024; Singh et al., 2024). Education changed from conventional classroom activities to online learning (Adedoyin & Soykan, 2023; Aristovnik et al., 2023; Khong et al., 2023; Osman et al., 2023; Tang, 2023). The outbreak significantly impacted Indonesia's education system, with 646 schools from kindergarten to university closed, 68.8 million students learning from home, and 4.2 million teachers teaching from home (Liputan6, 2020). The Ministry of Education and Culture then mandated all teaching and learning to be conducted from home, launching the Belajar Dari Rumah (BDR) policy through Circular Letter Number 4 of 2020 regarding education during the COVID-19 emergency.

Online learning becomes a common teaching and learning process during the COVID-19 pandemic, in which the activities are done by assisting technology without including direct face-to-face meetings. The spread of online learning in Indonesia happens not only in cities but also in small villages (Agung et al., 2020). Online learning can be described as a learning environment that includes the role of technology in the activity, and it offers freedom of time and space (Baber, 2020; Suwastini et al., 2023). Besides, online learning can be specified as a language learning environment assisted by computers, smartphones, the internet, and other web technologies (Erarslan & Arslan, 2020; Ibrahim & Al-Jadaan, 2024). To conduct online learning, all participants, teachers, and students should have an internet connection since it is their main requirement (Agung et al., 2020). Another tool utilized for online learning is learning platforms (Fitriani et al., 2020; Guerrero-Quiñonez et al., 2023). Some online platforms are used in online learning, namely Zoom, Google classroom, Google meet, even social media

such as WhatsApp (Badaruddin et al., 2023; Berutu & Hanana, 2023; Nasution & Ahmad, 2020).

Online learning offers some advantages for the participants. The major advantage that the participants feel is the flexibility of online learning. Online learning offers significant flexibility, such as time and places flexibility (Nkwanyana & Fagbadebo, 2024). Online learning offers place flexibility because online learning can be done at home (Priyono et al., 2020), and it can be accessed anywhere (Mulyani et al., 2021; Ningsih, 2020). Online learning makes both the teachers and students can do their teaching and learning process at home, so it makes the students and the teacher do not need to have extra transportation costs to go to a specific place. Online learning offers both teachers and students flexibility because the teacher and students can be connected at any place and at any time (Nambiar, 2020). Flexibility in time and place are two general advantages that both teachers and students feel. Besides the flexibility, online learning also gives other advantages.

Implementing online learning amid the COVID-19 pandemic becomes one great solution to keep the teacher and students connected. A study Allo (2020) and Nkwanyana and Fagbadebo (2024) found that online learning was beneficial for the students in the middle of the COVID-19 pandemic. In Pakistan (Adnan & Anwar, 2020), the students showed that online learning made the students motivated to learn rather than conventional learning. Motivation can affect the process of learning, and conventional teaching can make the students feel unmotivated to learn (Lesmana & Lubis, 2020). The students' motivation is also caused by the freedom to use any suitable learning styles during online learning. The students can determine and use their learning styles based on their ways of learning. Learning styles is one factor that can affect the students' achievement in learning (Chan & Rahman, 2019). Besides, an individual task in online learning during the COVID-19 pandemic was beneficial to decrease the number of cases of COVID-19 since it let the students keep the distance between one student with other students. Furthermore, the students also stated that group task during online learning was beneficial for the students who did not have the appropriate tool and equipment for following the online learning.

Several studies have examined the success of online learning during the COVID-19 pandemic, which can be reflected through students' positive perceptions. Adnan & Anwar (2020) studied higher education students in Pakistan, focusing on the effectiveness of online learning and its challenges. Their findings showed that students felt comfortable with digital communication and were motivated. Similarly, Biswas et al. (2020) investigated university students in Bangladesh and found that online learning was a good option to reduce study gaps, improve study skills and knowledge, provide new learning experiences, and enhance motivation. Besides, a study on IT students in Sri Lanka found that online learning during the COVID-19 pandemic made the students participate actively (Akuratiya & Meddage, 2020). Junior high school students at Maria Bintang Laut acknowledged that they wanted to have online learning in the future (Fahik & Santosa, 2021). From those studies, it can be seen that the implementation of online learning in the middle of the COVID-19 pandemic offers positive impacts for the students.

However, negative perceptions towards online learning in the middle of the COVID-19 pandemic are undeniable. Teachers and students face difficulties during online learning, and it leads to negative perceptions toward online learning. Teachers found ICT difficulties, internet connection problems, time management, and their students' accessibility during the implementation of online learning in the COVID-19 pandemic thus the teacher preferred face to face interaction (Puspitasari et al., 2021). Some studies found that students revealed negative perceptions towards online learning during the COVID-19 pandemic. High school students in East Java Province, Indonesia revealed that the students faced limited internet quota and signal issues during online learning during the COVID-19 pandemic (Meisandy & Sumarmi, 2020).

A study that was conducted in Pakistan Adnan and Anwar (2020) found that students face difficulties related to group work. Even though the group projects could be done digitally, but they stated that it was difficult to finish group projects through distance education or online learning. The teacher in Bangalore city argued that online learning made them difficult to control their students' group interaction (Nambiar, 2020). University students in Bangladesh argued that online learning made them spend extra charge on the internet since it was the primary requirement of online learning (Biswas et al., 2020). Study conducted in Nepal assessed bachelor of dental surgery students' perceptions of online learning in the middle of the COVID-19 pandemic (Gupta et al., 2022). The studies established that the students felt online learning was distracting. Studies that were conducted towards Indonesia's higher education students also found a negative perception of online learning during the COVID-19 pandemic. There were five negative perceptions collected from Indonesia's higher education students from various studies namely internet access (Purwasih et al., 2020), (Agung et al., 2020), (Nasution & Ahmad, 2020), (Ningsih, 2020), (Mulyani et al., 2021), (Towip et al., 2021), (Hamid et al., 2020), (Basri et al., 2020), (Rinekso & Muslim, 2020), (Rifiyanti, 2020), (Tanjung & Utomo, 2021), and (Famularsih, 2020), unstable internet connection (Ariyanti, 2020), (Purwasih et al., 2020), (Agung et al., 2020), (Nasution & Ahmad, 2020), (Ningsih, 2020), (Sujarwo et al., 2020), (Ningsih, 2020), (Ariyanti, 2020), (Susila et al., 2020), (Yulandari, 2020), (Nugroho, 2020), and (Nartiningrum & Nugroho, 2020), (Maulana & Hamidi, 2020), (Febrianto et al., 2020), and (Azhar, 2020), lack of interaction (Purwasih et al., 2020), (Fitriani et al., 2020), (Rojabi, 2020), (Daroedono et al., 2020), (Nugroho, 2020), (Nartiningrum & Nugroho, 2020), (Rasto et al., 2021), (Febrianto et al., 2020), and (Famularsih, 2020), ineffective instruction (Ariyanti, 2020), (Sadikin & Hamidah, 2020), (Purwasih et al., 2020), (Rojabi, 2020), (Susila et al., 2020), (Ningsih, 2020), (Fitriani et al., 2020), (Hamid et al., 2020), (Daroedono et al., 2020), (Yulandari, 2020), (Nugroho, 2020), (Anim & Mapilindo, 2020), (Maulana & Hamidi, 2020), and (Syauqi et al., 2020), and health issues (Ariyanti, 2020) and (Tanjung & Utomo, 2021). The higher education students' negative perceptions show that even though online learning offers some advantages (Adnan & Anwar, 2020) (Biswas et al., 2020) (Akuratiya & Meddage, 2020), the students still revealed negative perceptions toward online learning. Some problems cause negative perceptions towards online learning.

This article aimed to group Indonesian higher education students' positive and negative perceptions of online learning during the COVID-19 pandemic. It discussed both perceptions to comprehensively identify the causes and effects of online learning in that period. In the 21st century, technology plays a vital role in human life, including education, and it facilitated the teaching and learning process during the pandemic, allowing students to learn anytime and anywhere. The findings of this article can be used by education stakeholders to determine future regulations, while also guiding students, teachers, and researchers in addressing the factors behind negative perceptions. Consequently, alternative solutions can be developed to reduce negative views and enhance positive ones, making online learning more successful in the future.

METHOD

This article applied library research as its research method. Library research involved identifying various sources that provided factual information, expert opinion on research, and any necessary research component needed (George, 2008). The first step was choosing a general topic to be studied. The general topic was higher students' perceptions of online learning implementation during the COVID-19 pandemic. In the decond step, brainstormin gon the topic was conducted. The third step was highlighting the research question. Through this step, the article's research question was constructed: "What are the positive and negative

perceptions of the higher students in Indonesia toward online learning implementation in the COVID-19 pandemic?" The fourth step was developing research strategies, which determine the use of library research to answer the research question. It was followed by determinign Google search as the reference tool to collect some references that required the sources' criteria.

The data sources were collected by identifying and deciding the criteria of the data sources initially. The data sources were collected by considering six criteria: the sources were indexed by minimum Sinta 1-6, year of publication 2020-2021, discussing online learning, discussing online learning implementation during the COVID-19 pandemic, the setting of the studies were in Indonesia, and the participants were higher education students in which it indicated the students in college. The seventh step was evaluating the sources based on the research questions, where irrelevant sources were excluded.

The collected data sources were analyzed through the eighth step in this research. The eighth step was, understanding the sources. Understanding the sources was done through analyzing the data sources by reading, understanding, and grouping the students' perceptions based on the positive and negative perceptions. The ninth step was designing a thesis statement, where the arguments of students' positive and negative perceptions were outlined in a comprehensive research report in the form of the present article. The was further revised according to suggestions from colleagues and reviewers.

RESULT AND DISCUSSION

The present study was aimed to map Indonesian higher education students' perceptions towards online learning in the COVID-19 pandemic in Indonesia. Thirty-two related studies accross universities in Indonesia had been investigated, chosen for their relevance in identifying the factors affecting the students' perceptions of online learning.

Factors affecting students' positive perceptions towards online learning during the COVID-19 pandemic

Online learning implementation offered some benefits for the student's learning activity. According to the previous studies, the higher students in Indonesia revealed four positive perceptions of online learning. Those positive perceptions were affected by flexibility, availability of learning material, motivation, and variations of online platforms. Each of the positive perceptions was presented below.

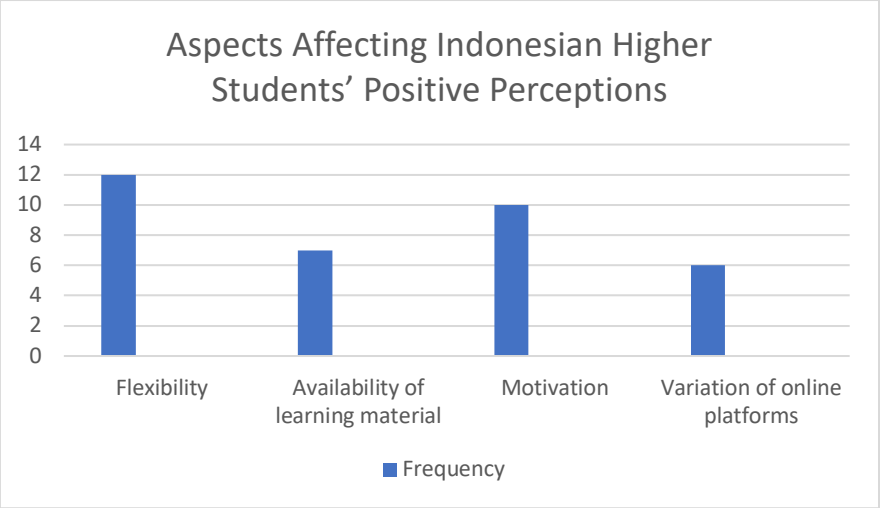


Figure 1. Factors affecting Indonesian Higher Education Students' positive perception toward online learning during COVID-19 pandemic

The figure above showed that four factors affected the students' positive perceptions of online learning. Those factors were flexibility, availability of learning material, motivation, and variations of online platforms. The explanation of each factor is described further below.

Flexibility

Online learning offered flexibility for the students. Since the learning activity was done through online learning, the students could access learning materials and follow online learning at any time and anywhere. Besides, the students could arrange their own time and use their learning styles to finish their assignments. There were some studies revealed that online learning offered flexibility for the students. The flexibilities offered by online learning were time flexibility, place flexibility, and learning styles flexibility.

Table 1. Flexibility during online learning in synchronous and asynchronous online learning

No.	Flexibility	Synchronous	Asynchronous
1	Time	√	√
2	Place	√	√
3	Learning styles	√	-

Table 1 presented that three flexibilities affected the Indonesian Higher Education students who followed synchronous online learning positive perceptions. Two flexibilities affected the Indonesian Higher Education students who followed asynchronous online learning positive perceptions. The flexibilities which the synchronous online learning students felt were time, place, and learning styles flexibilities. However, the students of asynchronous online learning revealed that the flexibility offered during the COVID-19 pandemic was time and place flexibility.

Synchronous online learning offered flexibility for the students in terms of time flexibility by learning at any time and location flexibility by learning at any place (Mulyani et al., 2021; Sudewi, 2021). This flexibility allowed students time efficiency (Ningsih, 2020). Students did not need to go to campus to study, and they could attend the class from home or places of their choice (Ariyanti, 2020). The students could access the material and learn them according to their learning styles (Ningsih, 2020; Sudewi, 2021). Students enjoyed the learning environment since it was a new thing for them to learn English through online learning, and they could learn it enjoyable at home (Rojabi, 2020). Besides, the application used in online learning could be accessed wherever (Sujarwo et al., 2020); thus, it made the students flexible in joining the online learning. Online learning's flexibility in time was effective and efficient (Towip et al., 2021). Time allocation to finish the assignments also allowed the students to manage their time, so it offered time flexibility for the students to finish the assignments (Firman, 2020). The implementation of online learning during the COVID-19 pandemic made the learning activities more effective and efficient because of the time and place flexibility (Febrianto et al., 2020).

Flexibility was also felt by the students who followed asynchronous online learning. Some studies revealed that asynchronous online learning offered flexibility for the students. Online learning offered flexibility for the students in terms of time flexibility by being able to learn at any time and location flexibility by being able to learn at any place (Daroedono et al., 2020). Besides, the flexibility of online learning allowed the students to do other activities like listening to music, eating, or even watching television (Yulandari, 2020). The implementation of online learning offered effectiveness and time efficiency for the students (Basri et al., 2020).

Availability of Learning Material

Teaching and learning through online learning did not mean that there was no learning material needed. Learning materials helped the students understand the whole material. Learning materials which the lecturer provided should also be relevant to the syllabus or course plan. Thus, the students could achieve the learning objectives. The availability of learning material became a positive perception found by some studies related to the implementation of online learning during the COVID-19 pandemic.

Table 2. Availability of learning material in online learning during the COVID-19 pandemic

No	Availability of Material	Synchronous	Asynchronous
1	Related to syllabus	√	√
2	Related to semester plan	√	√
3	Relevant material	√	√

Students taught through synchronous online learning in the pandemic of COVID-19 stated that learning materials were still provided by their lecturer. The provided materials through conducting online learning were related to the syllabus and the course. Students comprehended the materials delivered by their lecturer through online learning easier since the materials were relevant to the course. The assignments also were related to the materials given before and related to the course (Agung et al., 2020). Most students who participated in the study revealed that they agreed that the delivered materials were suitable for the course syllabus (Nasution & Ahmad, 2020). The material delivered also related to the learning plan for the current semester, which the lecturer had distributed at the initial meeting of the online learning (Sudewi, 2021). The media, objectives, and resources for learning were appropriately managed by the instructor (Towip et al., 2021). The content or materials delivered by the lectures were in line with the following learning activity, so in the next activity, the students were able to complete the activity because it was related to the previous content (Rinekso & Muslim, 2020).

Online learning, which was done through asynchronous online learning, also provided related material. Even though the learning was done through online learning, the lecturer still taught the students relevant materials related to the semester learning plan (Maulana & Hamidi, 2020). Even though the teaching and learning activity was done through online learning, the teacher did not teach irrelevant material to the students. The teacher kept teaching the students based on the teaching plan and relevant material.

Motivation

Online learning was motivating. The students who had not followed online learning before the spread of the COVID-19 felt new experiences towards online learning. The experiences came from various teaching strategies offered by the teacher and various teaching and learning platforms. Online learning made the teacher was creative to design the learning activity. An engaging learning activity made the students motivated and enthusiastic about continuing their learning. Besides, various platforms for learning made the students excited to learn through some new online platforms.

Table 3. Motivation's effects during online learning in synchronous and asynchronous online learning

No	Motivation's effects	Synchronous	Asynchronous
1	Enthusiast	√	-
2	Continuity to learn	√	-
3	Active participation	√	√

Synchronous and asynchronous online learning students were motivated during the online learning in the middle of the COVID-19 pandemic. Three main effects were caused by online learning in the middle of the COVID-19 pandemic. Those effects were that students became enthusiastic, had a willingness to learn, and became active participants.

The implementation of synchronous online learning in the COVID-19 outbreak in Indonesia increased the students' motivation to learn. Students were motivated and enthusiastic while learning through online learning during the pandemic of COVID-19, especially in learning listening (Sudewi, 2021). The learning materials, which were varied and collaborated with fun learning activities, stimulated the students' enthusiasm to learn the material actively (Rojabi, 2020). The students were highly interested to learn through online learning (Susila et al., 2020). The availability of various applications used in online learning made the students interested and was motivated them to learn through online learning (Sujarwo et al., 2020). Besides, the platforms used during the online learning were attractive and challenging, and it affected the students' motivation to continue learning and study more (Mulyani et al., 2021). Students were familiar with some platforms used in online learning. It increased the students' learning motivation and changed their attitude in using social media into positive attitudes (Tanjung & Utomo, 2021). Learning motivation also made the students participate actively during the online learning discussion (Rasto et al., 2021; Rinekso & Muslim, 2020).

Online learning implementation also affected the students' motivation for those who followed asynchronous online learning. The implementation of online learning during the COVID-19 pandemic made the students participate more actively and creatively (Saleh et al., 2021).

Variations of Online Platforms

Besides, online learning could be done anytime, and anywhere could also be done by utilizing various online platforms. Technology supported online learning by providing various teaching and learning platforms. The platforms could facilitate online learning by utilizing video conferences and sharing learning materials and assignments. Students are familiar with various online platforms, such as Zoom meetings and social media for chatting like WhatsApp. There were various online platforms which were used by the students revealed from the studies found.

The table shows the various platform used for supporting online learning during the COVID-19 pandemic in Indonesia. The technology used to assist in successfully implementing synchronous online learning was varied, starting from the learning management system provided by the government or institution or even social media. Some technology implemented to support online learning were Google classroom, Edmodo, Moodle, WhatsApp, Facebook, Instagram, Zoom video conference, and Google meet (Susila et al., 2020). The students of the education technology program utilized various applications that could be used for learning, such as Google classroom, WhatsApp, Zoom video conference, Edmodo, e-mail, and YouTube (Ningsih, 2020). The implementation of online learning utilized technology such as WhatsApp,

Zoom video conference, Google classroom, YouTube, Telegram, Instagram, and other applications (Sujarwo et al., 2020). Various platforms were also utilized by the university students in Aceh who stated that their platforms varied, such as WhatsApp, Opensimka, Google classroom, Google meet, Zoom video conference, Edmodo, and YouTube (Mulyani et al., 2021). Besides, students also used Zoom video conference, Google Classroom, Google meet, and a learning platform from their institute named SIAKAD (Rifiyanti, 2020).

The positive perception of asynchronous online learning during the pandemic of COVID-19 in Indonesia also showed variations in online platforms. Students of the Mathematics Education program at Universitas Asahan used WhatsApp, Google Meet, Google classroom, Zoom video conference, and other technology to follow the online learning program (Anim & Mapilindo, 2020).

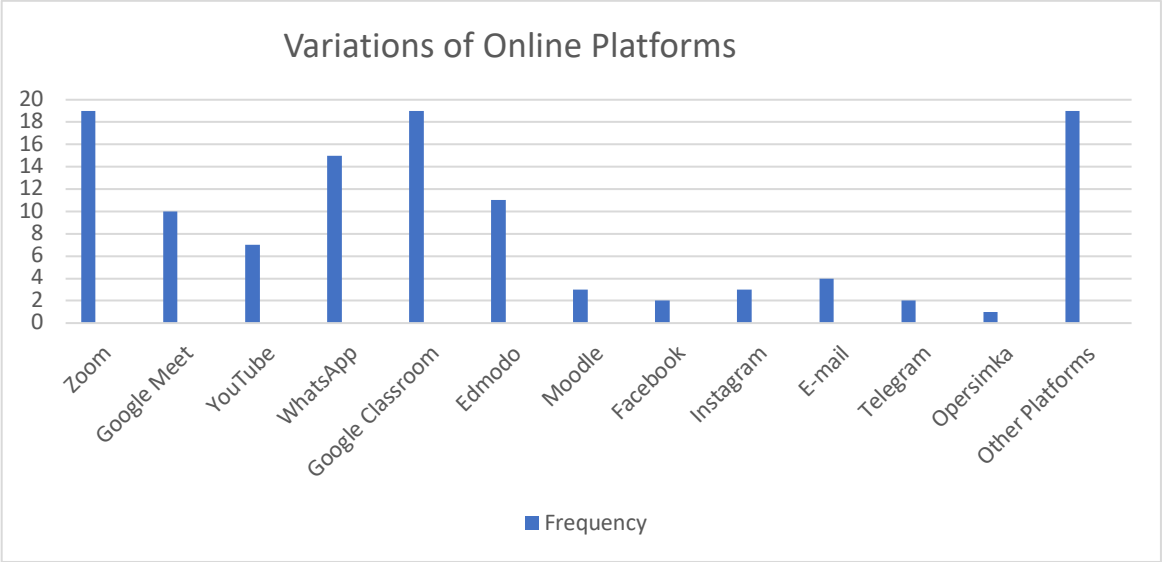


Figure 2. Variations of Online Learning Platforms

The data on online learning platforms shows that Zoom, Google Classroom, and other platforms were the most widely used, each with 19 users. WhatsApp also played a significant role with 15 users, followed by Edmodo (11) and Google Meet (10). Meanwhile, YouTube was used by 7 users, while Moodle and Instagram were each chosen by 3 users, and E-mail by 4 users. Less frequently used platforms included Facebook and Telegram with 2 users each, and Opersimka with only 1 user. This indicates that students tended to prefer platforms that were more familiar, accessible, and user-friendly for supporting online learning.

Students' negative perceptions towards online learning during the COVID-19 pandemic

The implementation of online learning made the students face some difficulties and revealed negative perceptions of online learning. The higher students revealed five negative perspectives toward online learning implementation in the COVID-19 pandemic. Those perspectives were internet access, unstable internet connection, lack of interaction, ineffective instruction, and health issues.

Table 4. Factors affecting Indonesian Higher Education Students' negative perception toward online learning during COVID-19 pandemic

No.	Aspects affecting Indonesian Higher Students' negative perceptions	References
1	Internet access	(Purwasih, Komala, & Santana, 2020), (Agung, Surtikanti, & Quinones, 2020), (Nasution & Ahmad, 2020), (Ningsih, 2020), (Mulyani, Fidyanti, Suryanti, Suri, & Halimatussakdiah, 2021), (Towip, Estriyanto, Rohman, Suharno, & Pambudi, 2021), (Hamid, Sentryo, & Hasan, 2020), and (Basri, Husain, & Modayana, 2020), (Rinekso & Muslim, 2020), (Rifiyanti, 2020), (Tanjung & Utomo, 2021), (Famularsih, 2020), (Fahik & Santosa, 2021), (Meisandy & Sumarmi, 2020).
2	Unstable internet connection	(Ariyanti, 2020), (Purwasih, Komala, & Santana, 2020), (Agung, Surtikanti, & Quinones, 2020), (Nasution & Ahmad, 2020), (Ningsih, 2020), (Sujarwo, Sukmawati, Akhiruddin, Ridwan, & Siradjuddin, 2020), (Ningsih, 2020), (Ariyanti, 2020), (Susila, Qosim, & Rositasari, 2020), (Yulandari, 2020), (Nugroho, 2020), and (Nartiningrum & Nugroho, 2020), (Maulana & Hamidi, 2020), (Rasto, Muhidin, Inayati, & Marsofiyati, 2021), (Febrianto, Mas'udah, & Megasari, 2020), (Azhar, 2020)
3	Lack of interaction	(Purwasih, Komala, & Santana, 2020), (Fitriani, Bandung, & Kadri, 2020), (Rojabi, 2020), (Daroedono, et al., 2020), (Nugroho, 2020), and (Nartiningrum & Nugroho, 2020), (Rasto, Muhidin, Inayati, & Marsofiyati, 2021), (Febrianto, Mas'udah, & Megasari, 2020), (Famularsih, 2020)
4	Ineffective instruction	(Ariyanti, 2020), (Sadikin & Hamidah, 2020), (Purwasih, Komala, & Santana, 2020), (Rojabi, 2020), (Susila, Qosim, & Rositasari, 2020), (Ningsih, 2020), (Fitriani, Bandung, & Kadri, 2020), (Hamid, Sentryo, & Hasan, 2020), (Daroedono, et al., 2020), (Yulandari, 2020), (Nugroho, 2020), (Anim & Mapilindo, 2020), and (Maulana & Hamidi, 2020), (Syauqi, Munadi, & Triyono, 2020), (Saleh, Sari, & Alim, 2021).
5	Health issue	(Ariyanti, 2020) and (Tanjung & Utomo, 2021)

Internet Access

Since online learning needed an internet connection to make the students stay connected, internet access also became a problem. Internet issues might be the significant difficulty proposed by the students in previous studies and faced by the students during the implementation of online learning. Unstable internet access made online learning did not run smoothly (Meisandy & Sumarmi, 2020). Besides, the unstable and unavailability of internet access made the students could not follow online learning well since they needed internet access to download learning materials, upload assignments, and join video conferences. The students who followed synchronous and asynchronous online learning felt the problem of internet access.

Table 5. Internet issues during online learning in the COVID-19 pandemic that affected Indonesian Higher Education Students negative perception

No	Internet issue	Synchronous	Asynchronous
1	Unavailability	√	-
2	Run of internet quota	√	-
3	Huge internet quota	√	-
4	Huge cost	√	-
5	Connectivity	√	-
6	Poor internet access	√	√

Table 5 showed that various internet issues affected the students' negative perceptions towards online learning in the middle of the COVID-19 pandemic. An internet connection issue was most felt by the students who were taught through synchronous online learning. It started to become a barrier for the students during online learning (Purwasih et al., 2020). Unstable or unavailable internet access made it challenging for the students to follow online learning and browse, upload, and download files. Most of the time, students ran out of internet quota, which may not be affordable for most students (Agung et al., 2020). Students felt burdened by the financial toll brought by the internet quota for supporting their online learning (Nasution & Ahmad, 2020; Ningsih, 2020). Students revealed that internet issues such as huge costs made the students did not want to continue online learning (Mulyani et al., 2021). Online learning made the students face difficulty in terms of internet data and connectivity (Towip et al., 2021). Network access and extra quota cost inhibited the students from following online learning (Hamid et al., 2020; Tanjung & Utomo, 2021). Furthermore, poor internet connection (Rinekso & Muslim, 2020; Tanjung & Utomo, 2021) and slow speed of the internet (Famularsih, 2020) also affect students' efficacy in delivering questions or answers during the synchronous online discussion (Rifiyanti, 2020).

The students who followed asynchronous online learning also felt that the problem they faced was internet access (Fahik & Santosa, 2021). The students felt that internet access was the main obstacle they faced during the implementation of asynchronous online learning (Basri et al., 2020). They added that poor internet access boosted the platforms that they used could not be implemented.

Unstable Internet Connection

Online learning implementation made the students face another issue related to the internet connection. Students faced an internet issue that was caused mainly by an unstable connection. An unstable signal interrupted the internet connection stability and affected the flow of online learning. The students faced various unstable internet connection problems, and those were presented in table 6 below.

Table 6. Unstable internet connection problem that affected the Indonesia Higher Education Students' negative perceptions

No	Unstable internet connection problem	Synchronous	Asynchronous
1	Different signal strength	√	-

2	Unstable signal strength	√	√
3	Signal loss	-	√

Table 6 showed that the students' unstable internet connection was caused by different signal strength, unstable signal strengths, and even signal loss. Unstable internet connection was felt both by the students who learned through synchronous and asynchronous online learning. It affected the students' negative perception toward online learning in the middle of the COVID-19.

An unstable internet connection became a problem during synchronous online learning. The different states of the students made different signal strengths between in town and their hometown, so most students decided to stay in town to get at least a stable signal (Ariyanti, 2020). The different states of the students also caused unstable signals, and not all the students lived in a place where the signal was stable (Purwasih et al., 2020). The students even needed to go to the highest place, such as a hill, or go away from their house to get stable signal strength (Agung et al., 2020). Signal strength or signal quality became one barrier for the students during the online learning implementation (Nasution & Ahmad, 2020; Ningsih, 2020) since the signal strength between the remote area and the city was different (Azhar, 2020; Febrianto et al., 2020; Rasto et al., 2021; Sujarwo et al., 2020) thus the internet could not be accessed easily. Limited signal availability made the students prefer face-to-face or conventional learning in the classroom rather than online learning (Ningsih, 2020). Unstable internet connection made the students face difficulties in joining online learning (Ariyanti, 2020). Besides, unstable internet connections with poor quality made the students not want to continue online learning (Susila et al., 2020). Some online platforms which the students used during online learning also required a large internet quota to be accessed (Febrianto et al., 2020).

Furthermore, similar difficulty was also felt by the students who were taught through asynchronous online learning. Inappropriate signal availability made the online learning was disturbed, and students could not understand and catch the material delivered to the maximum (Yulandari, 2020). Sometimes during online learning, the signal was lost and caused a problem in the learning activity (Nugroho, 2020). All of those studies also concluded that unstable signal strength affected their internet connection since the excellent internet connection was also decided by the signal's availability and strength. A general problem that the students faced during online learning were an unstable internet connection and expensive internet tolls (Maulana & Hamidi, 2020; Nartiningrum & Nugroho, 2020).

Lack of interaction

Online learning made the students feel less interaction when it was compared with face-to-face learning. Students learned materials through conventional face-to-face meetings in the classroom before the pandemic of the COVID-19 spread. They met their lecturer, friends, and everything was discussed directly. However, it changed into online learning, and the learning process was done digitally without having real face-to-face meetings. The implementation of online learning in the COVID-19 pandemic decreased the students-students and teacher-student interaction. Interaction lacking made the students unmotivated to learn sometimes. Interaction lacking caused the negative point of view of the students toward online learning. It was felt by the students who learned through synchronous and asynchronous online learning.

Table 7. Factors affected lack of interaction in online learning during the COVID-19 pandemic.

No	Factors of interaction lacking	Synchronous	Asynchronous
1	Unwell-interaction	√	-
2	No direct interaction	√	√
3	Low intensity of interaction	√	-
4	Limited interaction	-	√

Table 7 presented that four factors made the students reveal negative perceptions towards online learning during the pandemic of the COVID-19 in terms of interaction. Lack of interaction during online learning was caused by unwell-interaction, no direct interaction, low intensity of interaction, and limited interaction.

Students taught through synchronous online learning felt that the interaction during the teaching and learning process was lacking. During the implementation of online learning, it was also found that the lecturer did not well-interacted with the students (Purwasih et al., 2020). Hence, it caused a lack of interaction (Rasto et al., 2021). There was not much direct interaction between the students-students or students-lecturer during the online learning (Famularsih, 2020; Fitriani et al., 2020). The online class made the students could not interact with other students, and more difficult to get closer with the lecturer because of the low intensity of the interaction (Rojabi, 2020), and the less interaction made the students feel uncomfortable during online learning (Febrianto et al., 2020).

A similar negative perception was also found in asynchronous online learning. Online learning during the pandemic of COVID-19 made the teaching and learning process lack interaction. Students' perceptions of online learning in the middle of the COVID-19 pandemic from previous related studies showed similar negative perceptions. Students showed that the implementation of online learning during the COVID-19 pandemic lacked interaction between the students-students and teacher-students (Daroedono et al., 2020). Lack of direct interaction during online learning between the teacher and students caused boredom, and then the students were uninterested in the learning activity or material (Nugroho, 2020). Online learning made the interaction, communication, and social interactions that happened during online learning was limited between the lecturer-students and the students-students (Nartiningrum & Nugroho, 2020).

Ineffective Instruction

Online learning made the teaching and learning process run ineffectively. One of the causes was ineffective instruction from the lecturer. Sometimes, during online learning implementation, the lecturer did not explain before the students finished their assignments. Besides, the teaching strategy that the lecturer used was not attractive then it made the students unmotivated to learn. The lecturer was also sometimes absent during the online learning. Even though the teaching activity was switched to online learning, it did not mean that teacher or lecture could be absent during the learning process. The teacher still had a role in giving explicit instruction to the students. Unclear or ineffective instruction would lead to the students' lack of understanding. It was felt by the students who were taught through synchronous and asynchronous online learning.

Table 8. Factors of ineffective instruction affected the students' understanding during online learning and their negative perceptions towards online learning.

No	Factors	Synchronous	Asynchronous
1	Material	√	√
2	Learning media	√	-
3	Teacher's explanation	√	√
4	Limited interaction	√	-
5	Teaching strategy	√	√

Synchronous online learning students lacked understanding because of ineffective instruction, making online learning less effective (Saleh et al., 2021). The changes from face-to-face learning activities into online learning made the students unfamiliar with the condition and caused a lack of understanding (Ariyanti, 2020). The lectures did ineffective instruction by designing and planning learning activities unrelated to the learning objectives to be achieved (Syauqi et al., 2020). The students were also found difficulty in understanding the material delivered through online learning (Sadikin & Hamidah, 2020). The absence of face-to-face learning also caused the students' lack of understanding (Purwasih et al., 2020). Lack of understanding felt by the students was also caused by the uncomfortable feeling that happened during the online learning, unable to operate the technology well, and lack of self-confidence to ask questions related to the material to the lecturer (Rojabi, 2020). Most of the students' understanding of the material after the online learning was unsatisfying and showed that they did not have a sound understanding of the material (Susila et al., 2020). Learning media offered and lecturer's explanation not maximum thus the students unwell understood the course material (Ningsih, 2020). Online learning did not help the students comprehend the material (Fitriani et al., 2020). Limited interaction that happened during the online learning between the students and lecturer and the material was explained indirectly made the students sometimes did not catch the material given by their lecturer (Hamid et al., 2020).

Asynchronous online learning students also stated that their understanding was lacking because of the ineffective instruction. Students could not focus well, and thus they failed to comprehend the material during the online learning (Daroedono et al., 2020). The lack of understanding caused by the teaching strategy used by their lecturer gave the students tasks to be done without explaining the material to the students, so the students were confused (Yulandari, 2020). The student's understanding of the material given through online learning was depended on the material. However, sometimes, the students understood the material slower when it was compared to the face-to-face meetings (Nugroho, 2020). Students disagreed that online learning made their learning more organized, so the unorganized online learning made the students not understand well the material delivered during the online learning (Anim & Mapilindo, 2020). Moreover, the students whose learning activities needed a particular activity, such as practicum, felt it was difficult to understand the material for the practicum through online learning (Maulana & Hamidi, 2020).

Health issue

There was a health issue that was also found in the implementation of synchronous online learning. Online learning made the students long to sit in front of their learning tools such as gadgets, computers, or smartphones. Furthermore, online learning made the students need to stare at the screen more than usual. The learning materials were sent through online platforms,

the learning materials were red through the screen, and the students should watch a learning material in the form of a video that might have a long duration. The long duration of online learning and all the online activities affected the students' health.

Table 9. Factors that affected students' health issues during online learning in the middle of the COVID-19 pandemic.

No	Health issue	Synchronous	Asynchronous
1	Headache	√	-
2	Sore eyes	√	-
3	Stress	√	-

Table 9 showed that the significant health issues that the students felt during online learning in the middle of the COVID-19 pandemic were headaches, sore eyes, and stress. The synchronous online learning students faced those health issues. The internal disadvantage which the students felt was a health issue. The online learning implementation during the pandemic of COVID-19 affected the students' physical part. Some students were having a problem with their health during online learning such as having a headache and sore eyes because of the long duration of the online learning (Ariyanti, 2020). As the teacher gave materials that students have to read especially when it used "share screen" and the teachers used PowerPoint, it would make the students keep read while staring at the screen. Health issues as internal disadvantages would not appear straight after students have done their online classes. When online classes occurred every single day for a long duration and students have to watch their screen, it gives bad effects on their health (Ariyanti, 2020). Besides, unpredictable changes in the assignment's deadline affected the students' minds and caused stress (Tanjung & Utomo, 2021).

CONCLUSION

Indonesia's higher students' perceptions towards online learning during the pandemic of COVID-19 showed various perceptions. The perceptions were categorized into positive and negative perceptions. There were four main positive perceptions revealed from twenty-two studies conducted, namely flexibility, availability of learning material, motivation, and variations of online platforms. The flexibility offered by online learning came out from the time, place, and learning styles flexibility. Students could access and learn at any time and anywhere. Besides, the students were flexible and free to choose the learning styles to comprehend the material. Most studies found that the material delivered during the online learning was relevant to the lesson plan of the course. Online learning was challenging and attractive for the students since it used various teaching techniques. Thus, the students were motivated to learn more. However, online learning also gained negative perceptions from college students. There were five main negative perceptions collected from the twenty-two previous studies. The negative perspectives were internet access, unstable internet connection, lack of interaction, ineffective instruction, and health issues. The major problems which the students faced during the online learning were internet access and unstable internet connection. The students need extra internet quota, unstable internet connection, and different states caused different signal strength. Indirect or even no explanation from the lecturer, lack of concentration, and lack of use to online learning made the absorption of the material lacking. Besides, the interaction during online learning was also lacking. Online learning limited the direct interaction between students-students and lecturer-students, and it caused boredom. The last negative perception was a health issue. The students spent more time sitting down, facing a computer or other devices, and the long duration of online learning caused headaches and sore eyes for the students. Conclusively, the implementation of online earning at higher education in Indonesia gave positive and negative experiences for the students. However,

online learning may be the best choice to be implemented in the middle of the COVID-19 pandemic in Indonesia.

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