# Online Learning Experience During Covid-19 Pandemic: Higher Education Students Satisfaction and Expectation

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*The absence of instructors with online learning expertise, the information technology infrastructure, and the readiness of higher education institutions to support online learning were all obstacles to the deployment and success of online learning for students during the Covid-19 pandemic. This research examined student satisfaction with online learning in higher education institutions and explored students' goals for raising the standard of online education. According to 1,845 respondents from 8 provinces, 19 cities, and 62 higher education institutions, students in Sumatera Island in Indonesia were generally satisfied with online learning despite a lack of infrastructure. This study revealed that the areas students wanted higher education institutions to concentrate on to improve the online learning system were the lecturer, the teaching materials, and the internet quota. A descriptive quantitative research design was used by delivering an online survey to students who participated in online learning during the 2020–2021 academic year. The primary beneficiaries of this research were anticipated to be those involved in creating online learning models in the future.*

*Keywords: Covid-19, higher education, Indonesia, online learning, students*

## INTRODUCTION

The coronavirus, which was first discovered in Wuhan, China, causes Corona Virus Disease 2019 (Covid-19), the pandemic disruptor that affects the entire world. Everyone should stay at home, keep their distance from others, wear masks in public places, and wash their hands frequently to stop the virus from

spreading. Early in March 2020, Indonesia implemented several strategic measures in response to COVID-19, such as the choice to study at home to stop the spread of Covid-19. It is associated with the teaching and learning procedures used in educational institutions. In less than a month, 98 percent of Indonesia's higher education institutions reportedly converted to online learning, according to a report from the first week of April 2020. The Republic of Indonesia's President officially started the era of severe social restrictions on March 17, 2020. On March 3, 2020, Indonesian Higher Education Institutions decided to switch face-to-face class meetings to online classrooms until the Government of the Republic of Indonesia made another choice in response to the President's decision regarding social limitations in Indonesia. The Minister of Education and Culture of the Republic of Indonesia's Letter of Decision on Preventing the Covid-19 Pandemic from Spreading in Higher Education Institutions supported this decision. For students and instructors, switching from in-person to online learning is a unique experience. Teachers were driven to adopt a system they were ill-equipped to manage because they were compelled to accept a diversity of online learning methodologies through different online platforms (Pokhrel and Chhetri, 2021). This compulsion had a negative impact on several parties. While difficulty using the devices was cited in Italy as the primary source of pain during online learning, increased mental anguish, such as depression, anxiety, and tension, was indicated as the primary sources of discomfort in Slovenia (Katic et al. al., 2021). Online education in Cambodia is yet another illustration. Despite the Ministry of Education, Youth, and Sport Cambodia's efforts to provide online learning opportunities by airing video lessons on television and other online platforms, many academics and students in rural Cambodia found online learning to be challenging and frustrating due to a lack of dependable internet access and the inability to utilize cutting-edge technology (Heng and Sol, 2020).

Online learning is not a new learning method in developed countries. Students in developed countries are generally familiar with different aspects of online learning through learning platforms like Blackboard, which is sometimes a part of the curriculum. Many universities in developed countries now offer fully online degrees, allowing students to study from anywhere. Online learning is not common in developing countries like Indonesia, and numerous challenges exist with implementing this learning method. Due to the geographical location of many areas separated by seas and clustered on islands, Indonesia faces challenges in developing information technology infrastructure as an archipelagic country. It leads to inconsistencies in technological development and weaknesses in ICT infrastructure within and between Indonesian cities. Most Indonesian higher education institutions, particularly those on Sumatera Island, continue to use traditional teaching methods in which students attend face-to-face lectures in class. Even though several higher education institutions on the island had implemented online learning before the Covid-19 pandemic, many institutions still use the old face-to-face learning method. Many higher education institutions lack experience with online learning and must convert traditional classroom activities to virtual learning. Although Indonesia has many internet users, which increased by 27 million between 2020 and 2021, the transition from face-to-face to online learning poses a challenge for many higher education institutions (Kemp, 2021). On the other hand, this transformation presents opportunities and challenges for improving online learning quality.

Many recent studies in Indonesia have evaluated the online learning process. There were some online learning researches conducted in Indonesia, such as The use of digital platforms during the Covid-19 pandemic (Assidiqi and Sumarni, 2020), Online Learning in the Middle of the Covid-19 Pandemic (Firman and Rahman, 2020), Distance Learning Problems During the Covid-19 Pandemic (Prabawangi et al., 2021), Perceptions and Determinants of Online Learning (Mitasari et al., 2021; Basar, 2021). However, no research has been conducted on students enrolled in private and public higher education institutions on Sumatera Island in Indonesia. This study assesses the online learning process at higher education institutions on Sumatera Island in Indonesia. This assessment was expected to assist higher education institutions in determining student satisfaction with online learning during the Covid-19 pandemic to facilitate the learning process properly. Furthermore, the findings of this study were expected to serve as a benchmark for higher education in Sumatera Island as they strive to improve the quality of online learning based on the student's expectations of online learning. This study's two research questions are: Are students satisfied with online learning? Moreover, what do students expect for future online learning? During that academic year, we

assume that lecturers delivered the knowledge smoothly and that students received the course materials as expected.

## RESEARCH METHODOLOGY

The population in this study were students enrolled in private and public higher education institutions in Indonesia during the academic year 2020/2021. The sample in this study were students enrolled in private and public higher education institutions in Sumatera Island during the academic year 2020/2021. Sumatera Island has been selected as the sample because, as the third-largest island in Indonesia, it is home to many state and private higher education institutions that have the potential to produce the nation's future leaders. This study will compile data and information from a survey sent to students in Sumatera Island, Republic of Indonesia, who were actively enrolled and taking classes during the academic year 2020/2021. Students' satisfaction, experiences, and expectations in online learning during the Covid-19 pandemic are the focus of this survey. Closed and open questions were distributed using Google Forms to students actively attending lectures during the academic year 2020/2021.

This survey consists of 41 questions divided into eight categories: six questions on demographics, three questions on the use of online learning media, ten questions on connectivity and learning process, four questions on readiness and online learning, four questions on economics, five questions on suggestions, four questions on the assessment, and five questions on hybrid lectures. A 5-point Likert scale was used for several survey questions, ranging from very good (5 points), good (4 points), fair (3 points), poor (2 points), and very poor (2 points) (1 point). Students were asked to respond to the questions and rate each online course. The survey was distributed online in March 2022, and 1,936 people responded. After validating the data, a total of 1,845 respondents were obtained. The research data was then analyzed using a descriptive quantitative research approach.

## RESULTS

### Demography

There were 880 male and 965 female students among the 1,845 survey respondents. The respondents were students who actively participated in online learning from semesters 1 to 14 at universities in Sumatera Island, with 27.32% of students paying tuition on their own. Students enrolled in the undergraduate represented 85.69% of survey respondents. Following these are diploma, master, and doctorate students, with percentages of 8.29%, 5.64%, and 0.38%, respectively.

This survey's participants are active college students in eight Sumatra provinces in Sumatera Island: Sumatera Selatan, Sumatera Barat, Riau, Lampung, Bengkulu, Bangka Belitung, Sumatera Utara, and Jambi. In addition, Palembang, Padang, Lubuklinggau, Pekanbaru, Bengkulu, Bandar Lampung, Kampar, Pangkal Pindang, Banyuasin, Dharmasraya, Metro, Medan, Ogan Komering Ulu, Pringsewu, Pagar Alam, Jambi, Padang Sidempuan, South Lampung, and Pematang Siantar were among the respondents, according to the city. Respondents came from a wide range of faculties, including Sports Science; Tarbiyah, Teacher Education, and Educational Sciences; Economy; Health Sciences; Computer Science; Law; Psychology; Social and Political Sciences; Nursing Science; Adab and Humanities; Technique; Da'wah and Communication Studies; Science and Technology, Languages, Literature, and Arts; Agriculture; Islam; Pharmacy; Medical; Hospitality; Marine and a variety of other fields. Moreover, Management, Midwifery, Accounting, Information Systems, Psychology, Civil Engineering, Journalism, Literature, Islamic Studies, Pharmacy, Physics, State Administration Science, Fisheries Science, and other study programs are available to students from various faculties. In this survey, 57.67% of respondents were from the science major category, 36.91% from the social department, and 5.42% from the language department.

### Media and Connectivity

It is anticipated that the online learning process implemented during the Covid-19 pandemic will continue to meet the needs of students in developing their interests and talents after graduation. However,

to achieve effective online learning, educators must be prepared, and an appropriate curriculum must be available, as well as learning resources such as device support and a stable network (Basar, 2021). The research survey showed that students use a variety of providers from Indonesia's internet service providers to access online lectures. Those providers used were categorized into two types: state-owned and private enterprises. According to the various existing providers used by students to access online learning during the Covid-19 pandemic, 61.14% of respondents said the internet connection was good, 32.30% said it was sufficient, and 6.56% said it was insufficient.

**TABLE 1**
**MEDIA AND CONNECTIVITY**

| Category | Answer | Male | Female |
|---|---|---|---|
| Teaching devices | Handphone | 716 | 713 |
| | Notebook/Laptop | 112 | 208 |
| | Desktop Computer | 40 | 37 |
| | Tablet/Ipad | 7 | 3 |
| | Other Devices | 5 | 0 |
| Internet connection | Handphone | 617 | 630 |
| | WiFi | 203 | 276 |
| | LAN | 10 | 3 |
| | Others | 50 | 56 |
| Accessing online learning locations | House | 746 | 860 |
| | Office | 37 | 33 |
| | Friends/Family House | 32 | 28 |
| | Warung internet | 12 | 5 |
| | Others | 53 | 39 |
| Online learning types | Social Media | 23 | 14 |
| | Online Meeting | 558 | 532 |
| | Social Media and Online Meeting (Combined) | 292 | 407 |
| | Others | 7 | 12 |
| Online learning duration | < 1 jam | 166 | 152 |
| | 1-2 jam | 650 | 733 |
| | 3-4 jam | 37 | 49 |
| | > 4 jam | 27 | 31 |

Among many types of devices students use to access online learning, cell phones were selected by 77.45% of respondents as the device used to attend online learning. Students also utilize desktop computers, tablets/iPads, and the kindle to participate in online learning. Along with the high rate of mobile phone use in online learning, mobile phone provider connections have the highest percentage, 67.59%. This statistic is relatively high compared to other internet connections such as WiFi and LAN at 25.96% and 0.70%, respectively.

This survey indicates that students actively studying during the Covid-19 pandemic adhere to the government's request that all residents remain at home during the pandemic. According to 87.05%, the house is the best place for attending and accessing online learning. This number was followed by office at 3.79% and a relative's/family member's house at 3.25%. Several additional respondents who do not have appropriate internet access at home cited internet cafés and open parks as suitable locations for attending online classes.

The types of online lectures from higher education institutions are relatively various. This survey reveals that 59.08% of online learning were conducted utilizing various online meeting applications, including Zoom Cloud Meeting, Webex, Google Classroom, and Skype. Social media as a digital platform

that enables users to communicate with one another is also employed as a medium for online lectures, despite its extremely low usage rate of 2.01%. During the pandemic, however, 37.89% of teaching staff combined social media and online meeting tools to offer online lessons. In the past decade, the use of social media has increased dramatically. Typically, social media was employed in education. However, the application was not specifically created for that purpose, and the scientific community is still not well-versed in the other social media platforms that have attracted substantial attention from young people (Salehudin et al., 2021).

**Online Learning Implementation**

During the Covid-19 pandemic, both lecturers and students were required to be able to participate in online learning using a variety of educational platforms. Although the ideal concept of learning cannot be applied to online learning due to the limitations of interaction inherent in the face-to-face learning process, the information is delivered via a digital platform, which demands adaptation from both teachers and students (Assidiqi and Sumarni, 2020). Students who reside in remote areas on Sumatera Island had limited internet connections to access online learning during the Covid-19 pandemic. As a result, they faced numerous obstacles to participating in online learning. However, they still attempt to use multiple platforms, such as emails for collecting assignments and online meeting applications such as Microsoft Teams, Google, and Zoom Cloud Meeting platforms, to communicate with other students and instructors (Mahyoob, 2020). In addition, free programs are available to higher education institutions professors can utilize that as a platform for online learning. This survey indicates that 83.36% of faculty members use the Zoom Cloud Meeting tool. This number was followed by 42.38% and 35.72% for Google Meet and Google Classroom, respectively. This survey's findings indicate that Zoom Cloud Meeting, Google Meet, and Google Classroom were utilized the most compared to other platforms. This conclusion is consistent with the results of interviews with participants in a study on the usage of digital platforms during the Covid-19 epidemic, which revealed that Zoom Cloud Meetings and Google facilities are digital platforms that were frequently employed in online learning (Assidiqi and Sumarni, 2020). As for other online lecture media applications, such as Webex and Skype, their usage percentage is less than 2%.

Based on the amount of time spent by lecturers when delivering online lectures, 74.96% indicated that they spent between one and two hours attending online lectures. This proportion was followed by less than an hour of online lectures. On the other hand, the percentage of students participating in online lectures for three to four hours and more than four hours was relatively low, at 4.66% and 3.14%, respectively. Based on that percentage, it showed that most students spent between one and two hours attending online lectures during the Covid-19 pandemic. This survey also indicated that 36 management degree students reported spending an average of more than four hours per week on online lectures. Due to the length of online learning attended by the management degree students, this survey revealed that many students believe that the materials presented in language, education, and management courses were the most precise and applicable to the concept of the online lecture.

## ANALISIS AND DISCUSSION

**Validity and Reliability Test**

In this study, the validity and reliability tests were conducted to measure and confirm that the research instruments were valid and reliable so that they could be used in this study. Using the Pearson Product Moment correlation formula, the validity of the data in this study was assessed. Before the survey was deployed to the participants, they were tested on 200 students. The validity and reliability tests were used for those 200 samples, and a two-tailed significance level ($\alpha = 0.05$). Based on those samples and significance level, the r table used for this validity test was 0.138.

**TABLE 2**
**SATISFACTION VALIDITY**

| Variable | Code | Attribute | r count | r table | Validity |
|---|---|---|---|---|---|
| **Higher Education Institution** | Q.1.1 | Suggestion | 0.791 | 0.138 | Valid |
| | Q.1.2 | Hybrid learning | 0.744 | 0.138 | Valid |
| | Q.1.3 | Connectivity and learning process | 0.403 | 0.138 | Valid |
| **Lecturer** | Q.2.1 | Readiness and online learning | 0.799 | 0.138 | Valid |
| | Q.2.2 | Suggestion | 0.801 | 0.138 | Valid |
| | Q.2.3 | Assessment | 0.681 | 0.138 | Valid |
| | Q.2.4 | Assessment | 0.504 | 0.138 | Valid |
| | Q.2.5 | Assessment | 0.683 | 0.138 | Valid |
| **Course Material** | Q.3.1 | Connectivity and learning process | 0.730 | 0.138 | Valid |
| | Q.3.2 | Connectivity and learning process | 0.762 | 0.138 | Valid |
| | Q.3.3 | Connectivity and learning process | 0.792 | 0.138 | Valid |
| | Q.3.4 | Readiness and online learning | 0.734 | 0.138 | Valid |
| **Infrastructure** | Q.4.1 | Readiness and online learning | 0.754 | 0.138 | Valid |
| | Q.4.2 | Connectivity and learning process | 0.466 | 0.138 | Valid |

Table 4.1 above shows the validity test for four research variables: higher education institution, lecturer, course material, and infrastructure. As seen from the satisfaction validity test table above, the validity tested each attribute of those variables. In addition, the table showed that the r count for each attribute of those four variables was higher than the r table in the four existing variables. Thus, it can be concluded that all satisfaction attributes evaluated with the Pearson Product Moment test were valid and reliable, allowing them to be utilized in research.

The reliability test was conducted after the validity test, with the conditions that if Cronbach's Alpha ($\alpha = 0.05$) was greater than 0.20, the questionnaire for this research survey could be considered reliable or consistent. In contrast, if Cronbach's Alpha ($\alpha = 0.05$) is less than 0.20, this study's survey questionnaire can be considered unreliable or inconsistent. Like the validity tests, the higher education institution, the lecturer, the course material, and the infrastructure were the four research factors that the reliability test was undertaken to examine.

**TABLE 3**
**SATISFACTION RELIABILITY**

| Variable | Code | Cronbach's Alpha | Reliability |
|---|---|---|---|
| **Higher Education Institution** | Q.1 | 0.584 | Reliable |
| **Lecturer** | Q.2 | 0.830 | Reliable |
| **Course Material** | Q.3 | 0.848 | Reliable |
| **Infrastructure** | Q.4 | 0.494 | Reliable |

Table 4.2 displays the results of the survey's reliability tests on all satisfaction attributes. Unlike the validity test, the reliability test only tests the research instruments for each variable, not attribute. The satisfaction reliability test table above showed the two Cronbach's Alpha values for lecturer and course material variables presented above were greater than 0.60. That value indicated the highly reliable results for both variables. On the other hand, the other two Cronbach's Alpha values for higher education institution and infrastructure variables were in the range of 0.40 to 0.60, indicating moderate reliability. Therefore, based on the reliability test, it can be concluded that all satisfaction attributes have been considered reliable

or suitable for use in the present study. After those two tests were completed, the survey was deployed to the qualified participants.

**Student Satisfaction Index**

Human resources, technology, infrastructure, and facilities can all contribute to the success of online education (Mitasari et al., 2021). Several additional factors, such as creating accessible materials, recording lectures, captioning videos content, adopting inclusive, culturally responsive teaching, adopting a flexible approach to student participation, ensuring financial support and equipment, understanding student needs, and addressing systemic racism, can contribute to the success of online learning (Naffi et al., 2020). This study determined the student satisfaction index with online lectures using four variables: higher education institutions, lecturers, course material, and infrastructure. In addition, this survey asked respondents some closed-ended questions to determine student satisfaction with online lectures.

**TABLE 4**
**STUDENT SATISFACTION INDEX OF ONLINE LEARNING**

| Factor | Index | Value |
|---|---|---|
| **Higher Education Institution** | 3.90 | 78.01 |
| **Lecturer** | 4.10 | 82.07 |
| **Course Material** | 3.81 | 76.27 |
| **Infrastructure** | 3.70 | 74.03 |

The family environment is one of the supporting systems that contribute to the success of online lectures. Undeniably, a student who is also a child in a family will tend to experience unstable emotional conditions and be bored by the new normal that requires him to study remotely during the Covid-19 pandemic (Mulyana et al., 2020). In addition to the family, higher education institutions play an essential role in the success of online learning. Therefore, the respondents were asked three questions regarding their educational institution. The index for the first question regarding student satisfaction with online lectures offered by higher education institutions in 2020-2021 is 3.64.

Then, with an index of 3.91, the second question concerns student satisfaction with higher education support for students attending lectures during the 2020-2021 academic year. During the pandemic, lecturers were one of the essential keys to online learning success. The analysis of student online learning satisfaction showed that most students expressed satisfaction with the lecturer's role as a facilitator and communication with the lecturer. In contrast, student dissatisfaction only occurred to student boredom in receiving independent assignments from the lecturer (Arny Irhani Asmin et al., 2021). Online teaching and learning activities are interpersonal communication activities with two directions in delivering material messages, with the nature of influencing and being influenced by using online media, where the online media used can cause numerous disruptions to the delivery of the material (Dzulfikri, 2021). For universities to facilitate the success of online education, preparation and implementation procedures must be established. The implementation procedure is a rule that governs the progression of online lectures. Effectively implemented procedures during online learning can increase student satisfaction with attending courses. With an index of 4.15, the third question in the higher education category concerns the application of procedures as student and lecturer rules in online classes.

Lecturers were expected to be able to monitor their students, such as by regularly communicating via telephone or video conference. In addition, the lecturers need to build a community that is not just a class where social-emotional students are essential to building a sense of community despite their physical separation (Hyde, 2020). Educators must design online learning systematically, prepare learning objects, conduct assessments and feedback, and ultimately evaluate learning during online lectures (Sumantri et al., 2020). Recognizing the importance of lecturers to the success of online learning, we asked respondents five questions about lecturers in this survey. The questions asked and their respective indexes are as follows:

how good the quality of the lecturers when teaching online lectures with an index of 4.15, how prepared and good the lecturers are in delivering lecture materials with an index of 4.02, the suitability of the material with the learning plan during online lectures with an index of 4.14, an explanation of the evaluation of various assignments and exams with an index of 4.11, and exemplary during the lecture procedure with an index of 4.09. These numbers were generally consistent with the findings of I Gede Adi Irawan et al. (2002) regarding the quality of learning and student satisfaction with online education during the Covid-19 pandemic. In his study, it was found that the majority of respondents, 92% were satisfied with the online learning environment, and 95% of respondents expressed satisfaction with the quality of online learning.

In addition to the lecturer's efforts to pay special attention to and communicate with students during these online learning, it is believed that course materials should be made more dynamic, engaging, and interactive to enhance the learning process (Dhawan, 2020). 87.43% of the lecturers' online course materials were created using Microsoft PowerPoint. In addition to providing material using Microsoft PowerPoint, as many as 28.78% and 26.56% of respondents stated that textbooks/modules and Microsoft Words were also utilized. Additionally, the lecturers provide online resources, such as national and international journals. Due to the significance of the course materials in supporting online learning, course materials are used as one of the factors influencing student satisfaction in online lectures in this study. Four questions were asked regarding online lecture materials. The questions asked of respondents and their respective indices include course material quality with an index of 4.06, acceptance of online course materials with an index of 3.68, course materials delivery with an index of 3.90, and comprehension of course materials with an index of 3.62. The high percentage of students who report being able to receive online course materials effectively suggests that online lectures do not pose a barrier for lecturers and students to deliver and receive lecture materials during the Covid-19 pandemic.

Online education requires a robust IT infrastructure as a prerequisite and essential component. Several regions in Sumatera Island suffer from relatively low Internet bandwidth and fewer access points. Accessibility and affordability to this online lecture are inadequate in many developing nations due to the high cost of data packages relative to the population's average income (Pokhrel and Chhetri, 2021). During the Covid-19 pandemic, the Ministry of Education and Culture of the Republic of Indonesia (2021), through the Data Center and Information Technology, provides 15 GB per month of internet data quota assistance through cellular operators for students and instructors. Respondents were asked two questions about the infrastructure that supports online learning and their respective indices, including infrastructure readiness with a score of 3.73 and internet connection with a score of 3.67.

This study demonstrates that although the infrastructure is inadequate, students are generally satisfied with implementing online learning, as indicated by the moderately high index value of 3.92. In conjunction with the decline in Covid-19 cases in Indonesia and the continued implementation of the Covid-19 vaccination by the Government of the Republic of Indonesia, some higher education institutions in Indonesia initiated limited face-to-face instruction. According to the Higher Education, Research and Technology Directorate General of the Ministry of Education, Culture, Research, and Technology (2022), higher education institutions can make face-to-face class implementation preparations based on the level of Covid-19 prevalence in their region. Assume that the minimum acceptable level of Covid-19 in the area has been reached. In such a case, the institution of higher education may conduct limited face-to-face classes and report to the local or regional task force.

This survey asks respondents about their lecture attendance preferences. According to the survey results, 69.97% of students prefer face-to-face classes over online learning. Even though face-to-face courses have begun at various universities on Sumatera Island, online learning will continue to be an option until the Covid-19 pandemic ends. Based on the results of this study, the online learning readiness index was 4.20. This value indicates that students and higher education institutions were prepared to attend and deliver in-person lectures. This value is derived from the willingness of higher education institutions to facilitate face-to-face lectures following the procedures outlined in the Instruction of the Minister of Home Affairs of the Republic of Indonesia, as well as the willingness of students to participate in face-to-face classes to fulfill vaccination requirements.

In light of the Covid-19 pandemic, higher education institutions should reevaluate their educational objectives. Students should be encouraged to ask more questions about what they want. The curriculum does not limit how lecturers conduct the learning process and environments that are not limited to higher education institutions' classrooms (Zhao, 2020).

**FIGURE 1**
**ONLINE LEARNING ADVANTAGES**


Figure 4.1 shows the WordCloud of the three most frequently occurring words: hemat means economical, fleksibel means flexible, and mudah means simple. The first word is hemat, which is closely related to saving, which is closely associated with money, time, and free. For instance, students need not travel from their homes to campus. In addition, the students can save money because they do not have to pay boarding/rental house fees if they live far from home. Students could also save money because they could study while assisting their parents with work, such as trading. The second word is fleksibel, which means that students can attend classes anywhere and at a time agreed upon by the lecturers. Multiple categories, such as learning time, place, and resources, have been proposed to classify the concept of adaptability (Soffer et al., 2019). There are many components associated with flexible learning, which holistically consider the learning and teaching process for flexibly building effective learning experiences, such as academic, administrative, technical infrastructure, and students. Flexible learning combines holistic consideration of the learning and teaching process for flexibly building effective learning experiences (Kokoc, 2019). The third is simple, providing simple access to online learning materials online/offline without the need to meet face-to-face using only internet signals, various tools, and supporting lecture platforms such as Zoom Cloud Meeting.

**FIGURE 2**
**ONLINE LEARNING SUGGESTIONS**


Figure 4.2 depicts a WordCloud of future suggestions for improving online learning. This survey's respondents frequently mention dosen means lecturer, materi means material, and kuota means quota in their suggestions. Lecturer is closely associated with the need to improve the quality of online learning, including teaching timeliness and discipline. In addition, the material becomes suggestions for future enhancements to online learning, such as providing more engaging and less monotonous content for online students. The addition of the free internet quota that students desire to support their online classes is another term that frequently appears. Additionally, the Internet connection must be improved, so it would not disrupt online learning.

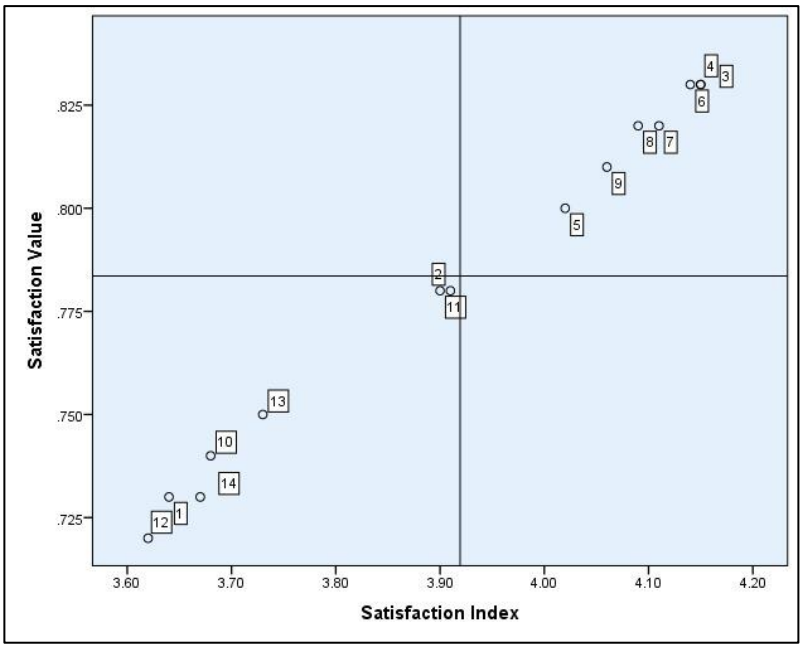
**FIGURE 3**
**ONLINE LEARNING DISADVANTAGES**

Figure 4.3 shows the WordCloud that illustrates the disadvantages of online learning. This survey's respondents frequently mention the following three words: dosen means lecturers, materi means materials, and internet. These three terms are similar to three often appearing in questions regarding online learning suggestions. For instance, it is difficult to comprehend the course material due to unstable internet network limitations, especially for students who reside in remote areas. The lack of clarity in the provision of course materials by the instructor during online learning was compounded by the monotonous nature of the course materials and the instructor's delivery. Some students found it challenging to comprehend material during flexible learning, such as partially ambiguous case study instructions, too much material to cover, and too much time commitment (Müller et al., 2018). In addition to becoming accustomed to online learning during the Covid-19 pandemic, lecturers were expected to be able to prepare appropriate content to be presented in online learning and improve the skills required to conduct effective and efficient online learning to enhance the quality of online learning (Cahyawati and Gunarto, 2020).

**Importance Performance Analysis**

Importance Performance Analysis (IPA) examines the discrepancy between a variable's actual performance and its expected performance to form a perception of the variable. This analysis identifies indicators that must be enhanced and maintained to ensure a positive perception of these metrics (Martilla & James, 1977; Feng et al., 2014; Sever, 2015). This study used a cartesian diagram to map the quality attributes of the analyzed variables, which were divided into four categories: category A as highest priority, category B as maintaining achievement, category C as low priority, and category D as excessive importance (Martilla & James, 1977; Feng et al., 2014; Servers, 2015). The result of the IPA analysis was used to identify the variables that need to enhance and maintained by higher education institutions on Sumatera Island to facilitate students in online learning during the Covid-19 pandemic. As a result, the institutions can support the students to succeed during online learning.

**FIGURE 4**
**CARTESIAN IPA DIAGRAM**




Four variables that measure student satisfaction with online learning activities were determined. They were student satisfaction with higher education, student satisfaction with lecturers, student satisfaction with

course material provided by lecturers, and student satisfaction with supporting infrastructure. Using IPA analysis, each indicator-bearing variable positions itself in the IPA Cartesian diagram as follows.

**TABLE 4**
**CATEGORIES OF RESEARCH INDICATORS IN IPA CARTESIAN DIAGRAM**

| No | Variable | Indicator Code | Quadrant Category |
|---|---|---|---|
| 1 | Student satisfaction with higher education in providing guidelines for implementing online learning | Q1.1 | C |
| | | Q1.2 | C |
| | | Q1.3 | B |
| 2 | Student satisfaction with lecturers | Q2.1 | B |
| | | Q2.2 | B |
| | | Q2.3 | B |
| | | Q2.4 | B |
| | | Q2.5 | B |
| 3 | Student satisfaction with course material provided by lecturers | Q3.1 | B |
| | | Q3.2 | C |
| | | Q3.3 | C |
| | | Q3.4 | C |
| 4 | Student satisfaction with supporting infrastructure | Q4.1 | C |
| | | Q4.2 | C |

Table 4.1 above shows that all of the variables tested are categorized either in quadrant category B or C. No variables were categorized in category A or D, as shown in the table categories of research indicators in the IPA cartesian diagram above. Consequently, it can be stated that no elements of service deemed of the utmost importance were included in category A as a list of factors or characteristics believed to affect student satisfaction. Still, in category A, the administration has not implemented them following students' desires, so they are disappointed/dissatisfied.

Based on the results of the Cartesian IPA diagram analysis, it can explain that the variable of student satisfaction with the online lecture policies of higher education institutions has two conditions. The first condition is some students were satisfied with online lecture policies during the Covid-19 pandemic in their higher education institutions. The second condition is the online lecture policies deserve to be retained. Nonetheless, some students have not been satisfied. The first condition showed that the students prefer to have the online learning method. According to research conducted by Fernandes (2020) and Husni (2021), students in Indonesia prefer the online learning method because it is more flexible and time-efficient. In addition, students felt safer studying despite the threat of a virus and were exposed to concepts with which they were previously unfamiliar. Second, some students have been dissatisfied with the online lecture policy of higher education institutions. This result is consistent with Zhang et al. (2020) and Husni (2021) research findings, which focused on students in Indonesia and developing nations. In comparison to static learning methods, they dislike the online learning method. Because online learning only runs in one direction, so the students were frequently and quickly bored during the lecture. In addition, students in Indonesia were a bit too slow to have a thorough understanding of how to use modern technology that was supported by financial conditions. Due to the fact that additional expenses, such as providing study quotas and online tuition facilities, will be incurred while tuition fees must still be paid.

Then, the variable student satisfaction with lecturers is located in quadrant B. It indicated that students were pleased with lecturers who conduct online lecture activities in their higher education institutions. This

result follows research findings that explain the close relationship between lecturers and student satisfaction when utilizing innovative online learning methods. Especially instructors who can increase students' self-assurance in online classes through the effective use of technology (Kechine, Raymond, and Augier, 2020); Samat et al., 2020). This result also showed that even though students and lecturers could not meet and hold face-to-face learning in the classroom, they could still develop a good relationship to maximize the learning processes and outcomes.

In addition, some students were dissatisfied with the varying levels of student satisfaction with the course material provided by their instructors. This result was consistent with Prabawangi et al. (2021), who explained that students were interested in online learning because it offered greater flexibility. Since students have a lot of responsibilities, like assignments and attending face-to-face classes, virtual classes could offer them flexibility. For example, students can open their laptops a minute before class starts instead of commuting to class from their house. It gave them valuable time to work on their assignments or take a couple more minutes to rest. However, students believe that the material presented tended to amaze them, and not vice versa; in other words, they were spoiled with good material but could care less. Nonetheless, most students have felt satisfied with the material provided by their lecturers. This result was consistent with research conducted by Arifin et al. (2021), which indicated that online learning would be successful if specific components, such as cognitive items, metacognitive items, resource items, items management, and affective items, were implemented into the online learning mechanism.

The final variable in quadrant C, student satisfaction with supporting infrastructure, explains why online students were dissatisfied with the existing infrastructure. Category C consists of a variety of less significant student factors. This result was consistent with research conducted by Chung et al. (2020), which emphasized that online lectures were more popular, straightforward, and user-friendly if they utilized well-known platforms such as Google Meet, Zoom Cloud Meeting, and YouTube. Those online platforms can help lecturers to deliver the course materials during such challenging times when the Covid-19 pandemic started in 2020. The lecture process would proceed without difficulty because it reached all demographic groups. However, suppose online lectures utilize platforms other than these. In this case, it frequently causes issues, particularly regarding supporting infrastructures, such as application simplicity, inexpensive and extensive networks, and malware, so various types of digital media can utilize it. If the information technology infrastructure was properly set up to support them, those online learning apps could satisfy and support the students' online learning objectives during the Covid-19 pandemic.

Diverse responses indicated that, on the one hand, students were pleased with the online lectures conducted by higher education institutions, the lecturers, and the lecture materials provided. The higher education students on Sumatera Island were supported by those three variables in participating in online learning. Nonetheless, some students were dissatisfied with the current infrastructure to participate in online learning during the Covid-19 pandemic. The IPA cartesian diagram above emphasized that students have accepted and adapted well to changes in lecture patterns from face-to-face to online learning. However, the adaptation to online learning on Sumatera Island was not accompanied by a statement regarding the readiness of supporting infrastructure.

## CONCLUSION

During the Covid-19 pandemic, online learning became a significant concern for the education community, including higher education institutions on Sumatera Island. However, student participation affects the success of online learning, and several factors determine satisfaction, including student attitudes toward learning participation and educational quality. For example, the implementation of online lectures would be successful if they were conducted using platforms such as Zoom Cloud Meeting, Google Meet, and Google Classroom for one to two hours on average. Additionally, students must be supported by a healthy psychological family environment to succeed in online learning. The facilities and information technology infrastructure that higher education institutions provide in online lectures, such as developing procedures and rules that comply with institution-specific requirements, naturally followed all of this. This research showed that students were satisfied with the course materials and the approach the higher education

institutions and lecturers delivered their lectures online. However, students were still dissatisfied with the existing infrastructure for online learning. It emphasizes that, on the one hand, students were pleased with the online lectures conducted by the higher education institutions, the lecturers, and the provided course material. However, on the other hand, the student satisfaction index with online lecture infrastructure was still deemed insufficient. In other words, students have received and adapted well to the shift from face-to-face to online lecture patterns, but the supporting infrastructure is not yet ready.

The study showed that student attitudes, online learning quality, and student satisfaction played essential roles in implementing online learning during the Covid-19 pandemic. It responded to the initial research question regarding student satisfaction with online learning. The study answered that the higher education students on Sumatera Island were satisfied with the online learning held during the Covid-19 pandemic. In response to the second research question, students also suggested improving the quality of instructors and course materials for online learning to enhance the learning experience. The results also revealed that the flexibility of online learning did not significantly influence students' online learning satisfaction, even though each institution of higher education had a limited infrastructure to support online learning. The findings of this study suggested that higher education institutions should consider the timing and location of online learning implementation to increase student satisfaction with online learning participation.

This descriptive-quantitative research used a relatively large sample of active students from across Sumatera Island in Indonesia during the academic year 2021/2022. Therefore, it might be claimed that this research is still relatively recent as it attempts to determine the student satisfaction index and expectations for online learning during the Covid-19 pandemic for one academic year experience using a relatively large sample size. Still, this research has not yet expanded to other islands in Indonesia, as the writing team focused exclusively on a single island to obtain more precise, trustworthy, and segmented results. In addition, it is still possible to create more specific sub-variables based on existing variables as similar research is expanded into the demographic realm and uses more parametric quantitative data analysis. More studies can be carried out with participants from other Indonesian islands to increase diversity and allow for a more comprehensive analysis of the experiences and expectations of online learning among higher education students.

## REFERENCES


Ariffin, K., Abdul Halim, N., & Darus, N.A. (2021). Discovering students' strategies in learning English online. *Asian Journal of University Education (AJUE)*, *7*(1), 261–268.

Asmin, A.I., Wahyono, E., & Hasby, M. (2021, August 25). Analisis Kepuasan Belajar Daring Mahasiswa Universitas Cokroaminoto Palopo. *Indonesian Journal of Learning Studies*, *1*(2), 106–117.

Assidiqi, M.H., & Sumarni, W. (2020). Pemanfaatan Platform Digital Di Masa Pandemi Covid-19. *Universitas Negeri Semarang*, pp. 298–303.

Basar, A.M. (2021, January). Problematika Pembelajaran Jarak Jauh Pada Masa Pandemi Covid-19. *Jurnal Ilmiah Pendidikan*, *2*(1), 208–218. https://doi.org/10.51276/edu.v2i1.112

Cahyawati, D., & Gunarto, M. (2020, October). Persepsi Mahasiswa Terhadap Pembelajaran Daring Pada Masa Pandemi Covid-19: Hambatan, Tingkat Kesetujuan, Materi, Beban Tugas, Kehadiran, Dan Pengelasan Dosen. *Jurnal Inovasi Teknologi Pendidikan*, *7*(2), 150–161. https://doi.org/10.21831/jitp.v7i2.33296

Cecilio-Fernandes, D., Parisi, M.C.R., Santos, T.M., & Sandars, J. (2020). The COVID-19 pandemic and the challenge of using technology for medical education in low and middle income countries. *MedEdPublish*, *9*(1). https://doi.org/10.15694/mep.2020.000074.1

Chung, E., Subramaniam, G., & Dass, L.C. (2020). Online learning readiness among university students in Malaysia amidst COVID-19. *Asian Journal of University Education*, *16*(2), 45–58.

Dhawan, S. (2020). Online Learning: A Panacea in the Time of Covid-19 Crisis." *Journal of Educational Technology*, *49*(1), 5–22, https://doi.org/10.1177/0047239520934018

Dzulfikri, A.F. (2021). *Evaluasi Efektivitas Kuliah Dalam Jaringan (Daring) Atau Kuliah Online Pada Masa Pandemi Covid-19* (Studi Kasus Mahasiswa Ilmu Komunikasi Dan Ilmu Pemerintahan Angkatan 2017-2019 Universitas Muhammadiyah Jember). Skripsi, Program Studi Ilmu Komunikasi, Fakultas Ilmu Sosial dan Ilmu Politik, Universitas Muhammadiyah. 2021.

Feng, M., Mangan, J., Wong, C., Xu, M., & Lalwani, C. (2014). Investigating the different approaches to importance–performance analysis. *The Service Industries Journal*, *34*(12), 1021–1041.

Firman, & Rahman, S.R. (2020, March). Pembelajaran Online Di Tengah Pandemi Covid-19. *Indonesian Journal of Educational Science*, *2*(2), 81–89.

Heng, K., & Sol, K. (2020, December 8). Online Learning during COVID-19: Key Challenges and Suggestions to Enhance Effectiveness. *Cambodian Education Forum*. Retrieved from https://cefcambodia.com/2020/12/08/online-%20learning-during-covid-19-key-challenges-and-suggestions-to-enhance-%20effectiveness/

Husni Rahiem, M.D. (2021). Indonesian university students' likes and dislikes about emergency remote learning during the COVID-19 pandemic. *Asian Journal of University Education (AJUE), 17*(1), 1–18.

Hyde, C. (2020, April). *Supporting Online Learning in a Time of Pandemic*.

Indrawan, I Gede Adi, Hidayat, Raden Ai Lutfi dan Juitania. "Survei Kualitas Pembelajaran dan Kepuasan Belajar Mahasiswa Terhadap Pembelajaran Daring Di Masa Pandemi COVID-19". *Jurnal Pendidikan dan Konseling*, *4*(2). https://doi.org/10.31004/jpdk.v4i2.4067

Katić, S., Ferraro, F.V., Ambra, F.I., & Iavarone, M.L. (2021). Distance Learning during the COVID-19 Pandemic. A Comparison between European Countries. *Education Sciences, 11*(10), 595. https://doi.org/10.3390/educsci11100595

Kementerian Pendidikan dan Kebudayaan Republik Indonesia. (2021). Peraturan Sekretaris Jenderal Nomor 4 Tahun 2021 Tentang Petunjuk Teknis Penyaluran Bantuan Pemerintah Paket Kuota Data Internet Tahun 2021.

Kemp, S. (2021, February 11). Digital in Indonesia: All the Statistics You Need in 2021. *DataReportal – Global Digital Insights*. Retrieved from https://datareportal.com/reports/digital-2021-indonesia

Khechine, H., Raymond, B., & Augier, M. (2020). The adoption of a social learning system: Intrinsic value in the UTAUT model. *British Journal of Educational Technology, 0*(0), 1–20.

Kokoç, M. (2019). Flexibility in E-Learning: Modelling Its Relation to Behavioural Engagement and Academic Performance. *Themes in ELearning, 12*, 1–16.

Mahyoob, M. (2020, December). "Challenges of E-Learning during the Covid-19 Pandemic Experienced by EFL Learners. *Arab World English Journal*, *11*(4), 351–362. https://dx.doi.org/10.24093/awej/vol11no4.23

Martilla, J.A., & James, J.C. (1977). Importance-performance analysis. *Journal of Marketing*, *41*(1), 77–79.

Mitasari, Z., Istikomayanti, Y., & Setiawan, R. (2021, May). Pembelajaran Daring Di Perguruan Tinggi: Persepsi Dan Faktor Penentu. *Jurnal Perndidikan Biologi*, *12*(1), 85–91.

Müller, C., Stahl, M., & Müller, M. (2018). Learning Effectiveness and Students' Perceptions in a Flexible Learning Course. *European Journal of Open, Distance and E-Learning*, *21*(2), 44–53.

Mulyana, Musfah, J., Siagian, N., Basid, A., Saimroh, Sovitriana, R., . . . Oktavian, C.N. (2020). *Pembelajaran Jarak Jauh Era Covid-19*. Jakarta, Litbangdiklat Press.

Naffi, N., Davidson, A-L., Patino, A., Beatty, B., Gbetoglo, E., & Duponsel, N. (2020, September 30). Online Learning during COVID-19: 8 Ways Universities Can Improve Equity and Access. *The Conversation*. Retrieved from https://theconversation.com/online-learning-during-covid-19-8-ways-universities-can-improve-equity-and-access-145286

Pokhrel, S., & Chhetri, R. (2021). A Literature Review on Impact of Covid-19 Pandemic on Teaching and Learning. *Higher Education for the Future*, *8*(1), 133–141. https://doi.org/10.1177/2347631120983481

Prabawangi, R.P., Fatanti, M.N., & Ananda, K.S. (2021, October). After a Year of Online Learning amid the Covid-19 Pandemic: A Survey of Indonesian Undergraduate Students' Opinions and

Behaviors. *Asian Journal of University Education*, *17*(4), 418–431. https://doi.org/10.24191/ajue.v17i4.16211
Salehudin, M., Zulherman, Z., Arifin, A., & Napitupulu, D. (2021). Extending Indonesia Government Policy for E-Learning and Social Media Usage. *Journal of Education and Instruction*, *11*(2), 14–26. https://doi.org/10.14527/pegegog.2021.02
Samat, M.F., Awang, N.A., Hussin, S.N.A., & Nawi, F.A.M. (2020). Online Distance Learning amidst COVID-19 Pandemic among University Students: A Practicality of Partial Least Squares Structural Equation Modelling Approach. *Asian Journal of University Education, 16*(3), 220–233.
Sever, I. (2015). Importance-performance analysis: A valid management tool? *Tourism Management*, *48*, 43–53.
Soffer, T., Kahan, T., & Nachmias, R. (2019, July). Patterns of Students' Utilization of Flexibility in Online Academic Courses and Their Relation to Course Achievement. *International Review of Research in Open and Distributed Learning*, *20*(3), 203–220. https://doi.org/10.19173/irrodl.v20i4.3949
Sumantri, A., Anggraeni, A.A., Rahmawati, A., Wahyudin, A., Hermawan, A., Julyan, B.S., . . . Balqis, Z. (2020). *Booklet Pembelajaran Daring*. Direktorat Jenderal Pendidikan Tinggi Kemdikbud Republik Indonesia.
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. *Journal of Risk and Financial Management*, *13*(3), 55. https://doi.org/10.3390/jrfm13030055
Zhao, Y. (2020, June 11). Covid-19 as a Catalyst for Educational Change. *Prospects*, *49*, 29–33. https://doi.org/10.1007/s11125-020-09477-y