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Online Learning Quality Evaluation in Higher Education During COVID-19 Pandemic

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ABSTRACT

The COVID-19 pandemic has drastically altered people's lives, including university education. COVID-19 has significantly impacted the transition from offline to online learning. Furthermore, education in Indonesia must be able to accelerate education 4.0. The learning system is carried out remotely using information technology. There will be numerous major challenges in implementing the online learning model. During the COVID-19 pandemic, Universitas Islam 45 needed to assess student satisfaction with online learning to maintain service quality. This study aimed to assess student satisfaction during online learning during the COVID-19 pandemic using the Service Quality (Servqual) and Importance Performance Analysis (IPA) methods. Servqual and IPA are methods for measuring customer satisfaction and service quality. According to the Servqual results, all 17 measurements have a negative gap value. This demonstrates a gap between students' perceptions and expectations of online learning. The IPA Matrix indicates the priority of improving online-based learning, which includes responding quickly and efficiently to students' needs in online-based learning, encouraging students' motivation throughout the learning process, and understanding students' impediments during the process of online-based learning.

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1. Introduction

The COVID-19 pandemic has affected almost all aspects of human life. The government has settled many restrictions to break the chain of virus transmission. Higher education is one of the sectors that has been most affected during the pandemic. Meanwhile, a Professor of the University of Applied Science and Arts, Hannover, Germany and Senior Experten Services (SES), Germany, Prof. Dr. Gerhad Fortwengel, stated that the COVID-19 outbreak had become a perfect catalyst that spurred the world of education (Ika, 2020). It is exemplified by the higher use of information technology in distance learning activities. However, there are many massive challenges in implementing the distance learning model. One of them is the readiness of the academic community, which is not yet accustomed to a blended and fully online learning system.

To fulfill the students' rights to obtain educational services during the emergency, the learning process is carried out through the implementation of Learning From Home (LFH) released from the official statement of the Ministry of Education and Culture Number 4 of 2020 for the Implementation of Education Policies in the Emergencies of the COVID-19 outbreak. Also, it is strongly supported by the Circular letter of the Secretary-General, Number 15 of 2020, on Guidelines for implementing LFH during the Covid 19 emergency. The principle of this home learning activity is that students can access learning materials and resources regardless of time and place. This activity is expected to support the online learning process and facilitate the dissemination of material to students.

During this pandemic, the offline learning process normally done with lecturers cannot be accomplished. Students are directed to Learning From Home (LFH), and lecturers must prepare teaching tools that allow students to study autonomously from home. This situation drives lecturers to change their teaching and learning strategies. Both the use of the teaching methods and the management of the teaching and learning process are essential during the learning from the home activity. These efforts provide students with access to learning material regardless of time and place during the COVID-19 emergency.

The sudden change from offline learning to online learning creates learning disruption. Many obstacles in an online study emerged unexpectedly, such as students' lack of information literacy (Nurhayati & Musa, 2020) and teachers' and educational managers' competencies challenges (Musa et al., 2022). This issue also happened at Universitas Islam 45, Bekasi. Based on the observation, the researchers found frequent complaints about the ongoing online learning system during the COVID-19 period that affected services. This vulnerable situation impacts the educational institution's reputation if it is unsolved. Undeniably, education has been known as one of the service industries in the last decade. A service industry always correlates to consumer satisfaction, so the proper services should always be applied properly. Therefore, the quality of educational services should be refined, especially in the case of online learning to achieve the students' satisfaction. Unachievable student satisfaction will lead to student saturation in online learning, decreasing grades and loyalty, and inability to compete with other competitors, so this research is done to assess the students' satisfaction with online learning during this COVID-19 situation expected to refine the quality of educational services.

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2. Literature Review

Learning at an educational institution is always related and impacts the quality of implementation that leads to its customers. The most important customers besides lecturers are students. Students should be facilitated easily in accessing learning, including utilizing the access to information technology provided by the university. Advanced information and communication technology (ICT) currently provides many conveniences and possibilities in planning and developing an education system, especially online learning concepts and models. As it was happening during this pandemic, the lecturing should change significantly.

Several things influence learning objectives, such as the learning process, media, and teaching materials. The learning process is a process in which the interaction activities between lecturers and students and reciprocal communication take place in educational situations to achieve learning objectives so that in the learning process, lecturers and students are two components that cannot be separated (Rustaman, 2001).

The quality of learning is largely determined by the system that works together mechanically in synergy to build the virtue of open learning. Learning thus always involves components that are related to each other, are systemic, and influence each other. Many components are included in quality learning; learning system, curriculum and learning materials, learning facilities, lecturers, students and learning media (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, 2017). Practices in learning activities will all be perfect if they are well established, available as needed, complement each other and cover weaknesses during the process. That is the requirement for this synergistic systemic learning to run optimally.

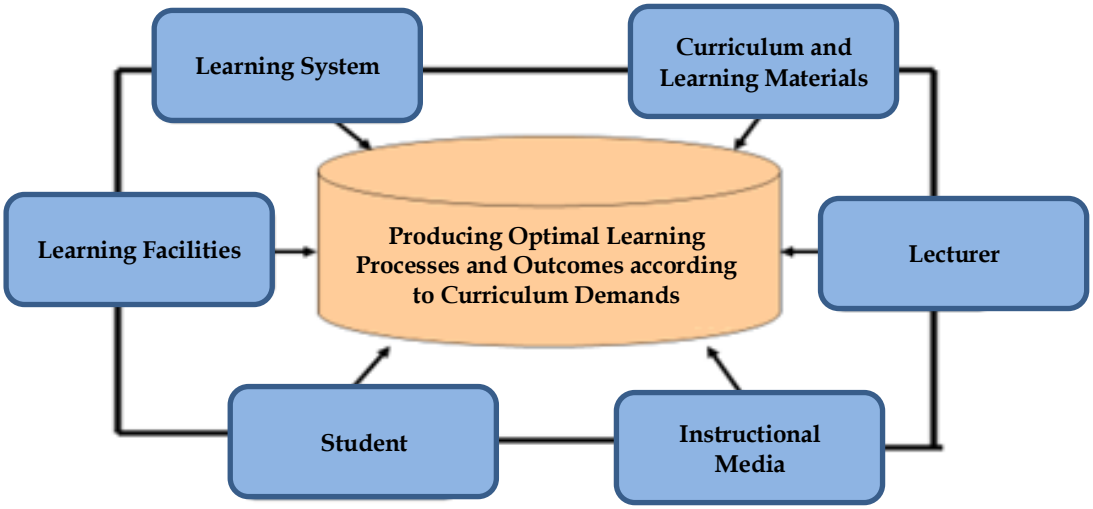

Figure 1. Intensity of Systemic and Synergistic Linkage
Source: Kementerian Pendidikan dan Kebudayaan Republik Indonesia (2017)

Sallis (2006) cited Deming's opinion, which states that quality is a combination of the properties of goods or services, which shows its ability to meet customer needs, both stated and implied needs. Wherever it is, psychologically, customers certainly need quality services; from this, it can be seen that quality is necessary to realize satisfaction for customers or consumers. Thus, the formulation of quality learning must have clear and directed sources so that its realization can truly become a joint commitment of all stakeholders in directly enforcing quality. The picture below will clarify the flow of implementing quality learning.

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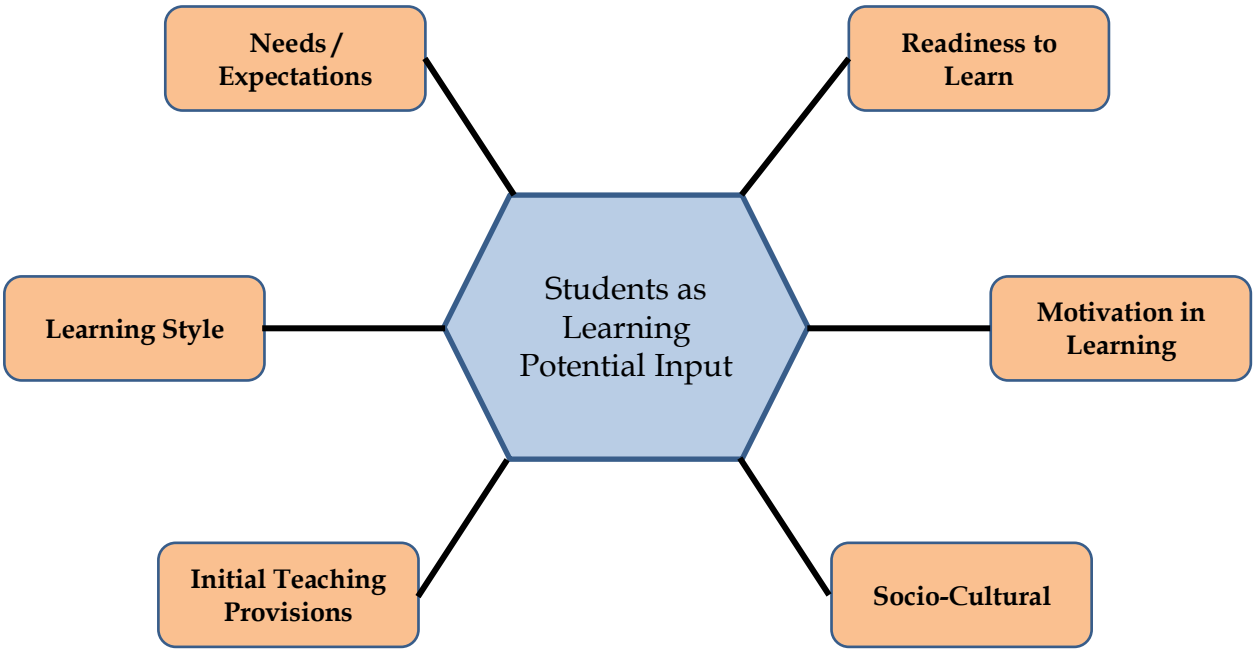

Figure 2. The factors impacted the learning quality
Source: Kementerian Pendidikan dan Kebudayaan Republik Indonesia (2017)

Based on the picture above, it can be observed that the learning process for students is psychologically related to the six modalities that influence each other. So none of these modalities are the most important and dominant; otherwise, each will actualize the concept of individuality and community. Regarding online learning currently running, it is important to concern three things: needs/expectations, readiness to learn, and learning styles. In our opinion, these three things are very supportive and strengthen the self-performance of students and educational institutions that must make serious efforts to provide and become facilitators of student learning.

According to Clark & Mayer (2011), the characteristics of online learning are (1) information and teaching methods that facilitate students to understand the learning content; (2) learning is carried out through computers using writing, sound or images such as illustrations, photos, animations, and videos; (3) intended to help educators teach students objectively. Quality in the context of learning is a service provided to students during teaching. Learning activities encompass the interaction of learning components so that learning activities run effectively and efficiently (Rifandi, 2013).

Quality learning is effective learning as measured by the level of student satisfaction. A good learning quality must be able to self-evaluate the learning to find the deficiencies in the quality of learning (Harjanto et al., 2020). The quality of online learning or e-learning can be seen from several categories, such as privilege, perfection or consistency, conformity with goals, and transformation (Ajmera & Dharamdasani, 2014). The transformation category is the most relevant part of the learning process. Transformation describes an increase in competence as a result of the learning process. Quality learning will also be able to increase high satisfaction for its users.

The level of student satisfaction in online learning is one of the benchmarks for success in the quality of learning. Student satisfaction and quality have a positive and significant influence, where good learning quality will produce optimal learning outcomes. A high level of

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student satisfaction can indicate that online learning has been going well (Prasetya & Harjanto, 2020). To measure student satisfaction, regularly evaluating the quality of learning is necessary. Evaluation of the quality of learning is a mandatory part of implementing learning activities to ensure learning objectives are following established standards (Yudiawan, 2020).

3. Research Methodology

The research occurred at Universitas Islam 45. The data collected from the population of active college students at Universitas Islam 45 refers to data from PDDikti to 9,861 students of 5,433 male and 4,428 female students. The number of samples collected refers to the opinion of Sugiyono (2014) that the appropriate sample size for research is between 30 to 500 respondents. Thus, the 500 respondents used in this research have reached feasibility as it represents the population in the criteria.

The data was collected from the literature study to define the attribute of the Servqual dimension and the questionnaire. The attributes portrayed for the questionnaire are customized with the online learning quality referring to the five Servqual dimensions. There are 17 attributes listed on the questionnaire based on the respondent's assumption and services perception. A Likert scale is used as an assessment in the questionnaire analysis to measure the attitude, people's perspective, and perception of an event or social phenomenon.

Table 1. Five Servqual Dimension Attributes

No	Dimension
1	**Tangible**
P1	Using interactive tools for online learning
P2	Easiness of access and networking the online learning platform
P3	Selection of a varied online platform
2	**Reliability**
P4	Lecturer consistency in optimally delivering the lecture
P5	Lecturers are reliable in managing the online classroom
P6	Lecturers are reliable in using the online learning platform
3	**Responsiveness**
P7	Lecturers efficiently and quickly respond to the student's needs during the online learning
P8	Lecturers can adapt from the offline learning mode to the online learning
P9	Lecturers respond to student's questions and comments
4	**Assurance**
P10	Lecturers experts in their field
P11	Lecturers are fair and impartial in assessing students
P12	Lecturers answer students' questions
P13	Lecturers masters the teaching material
5	**Empathy**
P14	Lecturers encourage and motivate the students to give their best effort in the online learning process.
P15	Lecturers understand students' difficulty with the online learning process
P16	Lecturers are aware of the students during online learning.
P17	Lecturers sustain long-term interest in the online learning process.

Source: Uppal et al. (2018)

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Furthermore, the data is tested for validity and reliability to ensure its feasibility. The validity was tested using the Bivariate Correlations formula. The data is considered valid if the value of the r-count is greater than the r-table (Pearson Product Moment). The reading of the r-table (Pearson Product Moment) is based on the number of samples used. The reliability test uses the alpha coefficient (α) from the Cronbach method to test all statement items in the questionnaire. According to Sekaran (2006), an instrument is declared reliable if the reliability coefficient is at least 0.6. Furthermore, the data proceed using SPSS to check the validity, reliability, gap analysis calculations, suitability levels, and the IPA matrix.

This calculates the gap between the average value of expectations and service perception. The formula for obtaining the average value of expectations or perceptions is to divide the total value by the total number of respondents. Here is the formula for the level of conformity below:

$$\boldsymbol{Tki = \frac{Xi}{Yi}\ x\ 100\%}$$

Note:
Tki = the conformity level of respondents
Xi = the score value of respondent performance perception
Yi = the score of respondent expectation

The method applied in this research is using Servqual. Servqual is a method used to measure service quality based on a gap analysis that describes differences in customer perceptions and customer expectations of service (Nurdianti & Suhendra, 2019). Servqual is the most widely used method to measure service quality (Afridi et al., 2016; Kamble & Sarangdhar, 2015; Leonnard, 2018; Soares et al., 2017; Suhendra & Nurdianti, 2018; Sumarmi & Wahyuni, 2016). According to Jabnoun & Khalifa (2005), some of the advantages of Servqual are the standardized analytical dimensions and procedures in interpreting the results. The reliability is valid in several service situations and is the reason for choosing the Servqual method in this study.

The mapping of the calculation of the level of conformity through IPA analysis describes the most important attributes perceived by consumers. The IPA matrix consists of four quadrants: quadrant I, quadrant II, quadrant III, and quadrant IV. The scientific method has been widely used in several industrial service areas, including education (Bezuidenhout & De Jager, 2014; Lakkoju, 2016; Luo et al., 2015; McLeay et al., 2017).

4. Results and Discussion

The validity and reliability tests were applied based on the r-table (person product moment) 2-sided test at a significance level of 0.05 and a sample of 500 people; the r-table value is 0.088. If the value of the r-count is greater than the r-table, then the data is declared valid, and vice versa; if the r-count is smaller than the r-table, it is considered invalid. The validity test results of all data on student expectations and service perceptions show that the r-count is greater than the r-table, so all data are valid. The results of the validity test of 500 respondents are presented in **Table 2** below.

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Table 2. Validity Test of Satisfaction and Expectation Level

Attribute Code	Performance level	Expectation level
	Total Correlation	Total Correlation
P1	0,778	0,593
P2	0,804	0,500
P3	0,823	0,583
P4	0,906	0,657
P5	0,912	0,684
P6	0,906	0,665
P7	0,865	0,731
P8	0,855	0,726
P9	0,844	0,712
P10	0,875	0,743
P11	0,876	0,715
P12	0,875	0,714
P13	0,881	0,760
P14	0,923	0,792
P15	0,923	0,782
P16	0,893	0,685
P17	0,945	0,729

Source: Processed Data in SPSS 26, 2021

The reliability test in this study used Cronbach's Alpha calculations. The Cronbach's Alpha value from the assessment of student expectations is 0.932 and 0.979 for the online learning service. The two test results stated that the data was feasible to be analyzed. The measurement of the quality value using Servqual was obtained by calculating the difference between the average performance score and the average value of student expectations for online learning. If the gap is negative, there is a gap between expectations and perceptions. On the contrary, if the gap value is positive, it indicates the quality exceeds the level of student satisfaction. The average value of perceived performance, student expectations, and gaps for each attribute is presented in **Table 3**.

Table 3. Gap Score

Attribute Code	Performance Level	Expectation Level	Gap
	Total Correlation	Total Correlation	
P1	2,76	3,35	-0,59
P2	2,76	3,37	-0,61
P3	2,72	3,34	-0,63
P4	3,21	3,47	-0,26
P5	3,17	3,44	-0,27
P6	3,21	3,48	-0,26
P7	3,26	3,44	-0,18
P8	3,35	3,50	-0,15

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Attribute Code	Performance Level	Expectation Level	Gap
P9	3,29	3,49	-0,20
P10	3,15	3,47	-0,31
P11	3,22	3,53	-0,31
P12	3,21	3,52	-0,31
P13	3,30	3,51	-0,21
P14	3,09	3,47	-0,37
P15	3,09	3,47	-0,38
P16	3,13	3,53	-0,39
P17	3,08	3,46	-0,37

Source: Processed Data in SPSS 26, 2021

Data in **Table 3** shows that the overall gap value of the 17 attributes is negative, indicating a gap between student performance and expectations in online learning. Improvement priorities are arranged using the IPA method. In this method, there is a calculation to determine the order of service improvement, measured by the level of conformity and the IPA matrix. The level of conformity is the percentage of comparing the total score of service performance perceptions to the total score of expectations and each attribute. The results of the suitability of all attributes are in **Table 4** below.

Table 4. Level of Attribute Conformity

Attribute Code	Performance	Expectation	Level of Conformity (%)
P1	1380	1677	82,29%
P2	1378	1685	81,78%
P3	1358	1671	81,27%
P4	1605	1736	92,45%
P5	1585	1720	92,15%
P6	1607	1739	92,41%
P7	1630	1721	94,71%
P8	1674	1748	95,77%
P9	1647	1746	94,33%
P10	1577	1734	90,95%
P11	1608	1763	91,21%
P12	1606	1762	91,15%
P13	1651	1756	94,02%
P14	1546	1733	89,21%
P15	1546	1736	89,06%
P16	1566	1763	88,83%
P17	1541	1728	89,18%
Average			90,04%

Source: Processed Data in SPSS 26, 2021

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The whole assessment criteria:
81% - 100 % = "Very good"
66% - 80% = "Good"
51% - 65% = "Fair"
35% - 50% = "Bad"
0% - 34% = "Worst"

The decision-making is taken by comparing the average level of conformity with the level of suitability of each attribute. Suppose the value of the suitability level of each attribute is less than the average level of conformity (90.04%). In that case, the attribute needs improvement, and if the suitability level of each attribute is greater than 82.57%, then the attribute needs to be maintained. So the attributes that need to be improved are attributes P1, P2, P3, P14, P15, P16, and P17. But overall, the assessment criteria are classified as very good, where the average level of conformity is more than 81%.

Knowing the attributes that influence student satisfaction most and become a priority for improvement, it is necessary to analyze using the IPA matrix. The IPA matrix consists of 4 quadrants: the top priority quadrant, maintain achievement, low priority, and excessive. In mapping the data to the Cartesian diagram on the IPA matrix, the average value of each attribute is needed, namely the average value of service performance perception (X) and the average student expectation value (Y), where the calculated value has been obtained in **Table 4**. The results of the IPA matrix in this study are presented in **Figure 3** below.

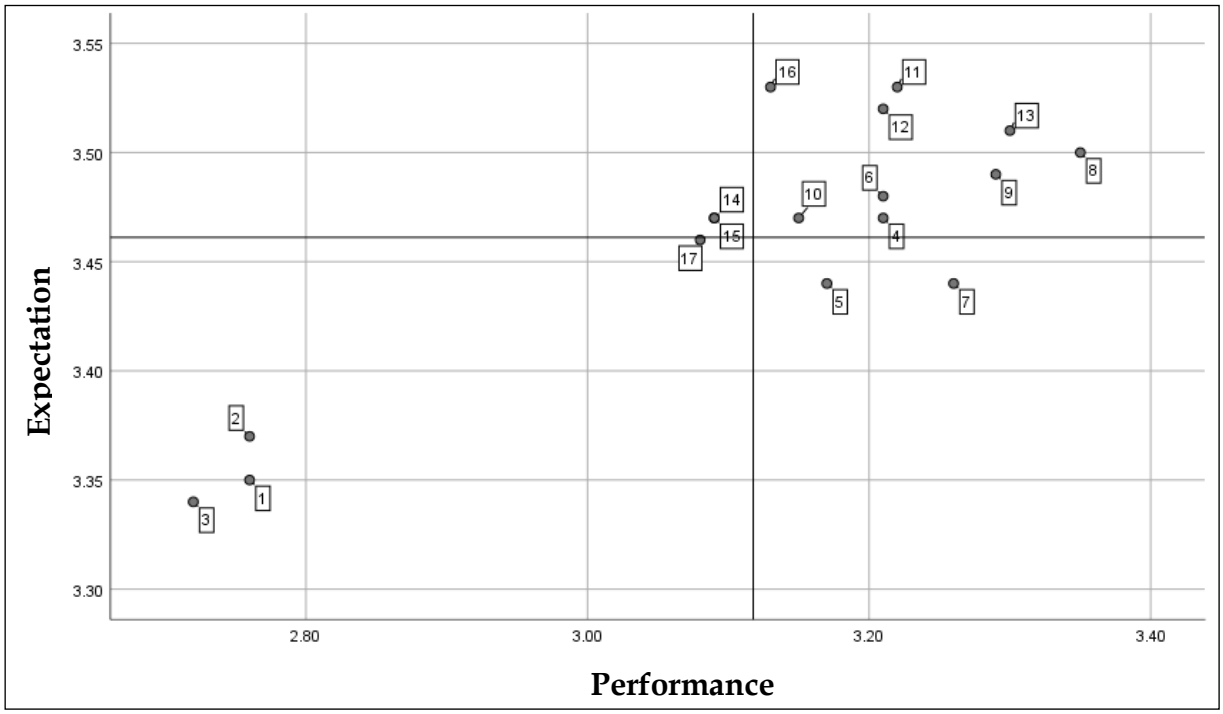

Figure 3. Cartesius Diagram between the expectation and performance of online learning

According to the IPA matrix, in quadrant I (primary priority), which depicts high expectations but low perceptions, there are high expectations but low perceptions. Included in quadrant I or deemed unsatisfactory by students in the implementation of online learning are encouragement and motivation from lecturers to students to do the best learning during the online lecture process, understanding and attention from lecturers to student difficulties during

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online lectures, and instilling interest on online lecture procedure in the long term for pupils to survive. In quadrant II (keep achievement), which is highly valued by students and characterized by high expectations and extremely positive perceptions, there is a strong emphasis on maintaining achievement.

The attributes included in quadrant II are lecturers' consistency in delivering quality online lectures, lecturers' dependability in using online learning platforms, lecturers' adaptability from offline learning to online learning, lecturers' willingness to answer student questions, lecturers teaching according to their fields, lecturers' fairness and impartiality in assessing students, and lecturers' mastery of the material described. This indicates that the features in quadrant II have been successfully applied and are seen as extremely good by students; hence, these attributes should be preserved. In quadrant III (low priority), which describes many aspects that are less significant and have less fulfilling impacts, perceptions are less than ideal. The features in the third quadrant include interactive technologies, the accessibility and connectivity of learning platforms, and the selection of diverse learning platforms. In quadrant IV (excessive), the features contained in quadrant IV indicate student-perceived factors that are neither overly significant nor overly anticipated but are nevertheless deemed satisfactory. The traits mentioned in quadrant IV do not respond fast and effectively concerning students' needs during online lectures and lecturers' dependability in managing courses in online lectures.

The COVID-19 pandemic has caused the transition from offline learning to online and has brought about sudden and massive changes in teaching and learning activities at Universitas Islam 45. This change requires fast adaptation for lecturers and students so that the learning process continues to run well. this result is in line with Herawati (2022) stated that the era of learning autonomy and the COVID-19 epidemic has prepared teachers to alter online learning for all students. Learning through technology with the right target instructor or online methodology is essential, affordable, engaging, and specialized; therefore, lecturers must have the values, abilities and skills of online learning, accompanied by instructors' experiences and independent learning by strengthening patterns of thought lifelong learning (Mardiana, 2020). However, based on the results of observations in the field, learning activities that should still be carried out according to the lecture schedule are often changed based on the condition of lecturers or students who think that online learning can be carried out at any time without being limited by time, place, and conditions. Lecturers who have never previously done online learning are forced to change the way of offline learning to online learning.

Understanding the operation of online learning platforms certainly takes time to learn. Time to understand the learning platform, changing situations and conditions often make lecturers only oriented toward the success of delivering material. This causes lecturers not to be aware of the difficulties felt by students due to changes in learning and the motivational needs of lecturers so that students continue to follow learning well. Therefore, to encourage student satisfaction at Universitas Islam 45, it is necessary to improve the online learning process by improving the quality of learning. This study is also in line with other studies which suggested that adapting to online education, particularly for deaf and hard-of-hearing students, as well as a lack of contact and motivation, technical and Internet concerns, data privacy and security, provide obstacles to online learning (Almahasees et al., 2021) and that there is a need for tangible activities to improve and optimize the process of online teaching and learning, such as enhancing instructors' technical abilities and implementing training programs to help teachers adapt their teaching style and how they engage with students to the online environment (Coman et al., 2020).

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5. Conclusion

The research on Service Quality (SERVQUAL) processing concludes that all 17 measured attributes produce a negative gap. It shows a gap between students' perceptions and expectations of online learning. The data results prove that the overall service quality performances are in the 'very good' category, which is in the range of more than 81% of criteria values, which is 90.04%. However, the results of the IPA matrix show that the attributes of quadrant I need to be enhanced on a priority basis by providing motivation (attribute 14), encouraging long-term interest in online lectures (attribute 16), and understanding students' difficulties during online lectures (attribute 17).

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The authors have declared no potential conflicts of interest concerning this article's research, authorship, and/or publication.

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