

Analysis of the Relationship Between E-Learning Service Quality and Student Trust, Student Satisfaction, and Student Loyalty

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ABSTRACT

The research was conducted to explore the impact of service quality on student loyalty with student satisfaction and student trust as mediation. This sorting is expected to contribute to the university in adding information and positive managerial implications to its management. This research aims to demonstrate that the quality of services on e-learning in affecting several other factors is also able to increase student loyalty. The research population was 95 respondents active students at Esa Unggul University. The questionnaire data collection took place online in February 2023. The method used for data analysis is partial least squares structural equation structure equation modeling. The results show that there is a positive impact of service quality, student satisfaction, and student trust. There is also a role of student satisfaction mediation, and student trust. The research is expected to contribute to educational institutions in improving the quality role of e-learning services aimed at increasing student loyalty to universities.

1. INTRODUCTION

Service quality (SERVQUAL) has been the subject of extensive research for many years in order to produce effective service outcomes (Iqbal, Hasan & Habibah, 2018). This is due to the fact that it greatly affects how customers interact with businesses. For students, a crucial demand is Servqual. Therefore, in today's fiercely competitive, dynamic, and complex business environment, continuous improvement of customer service (users) is crucial to the success of business growth (Annamdevula & Bellamkonda, 2016; Bolton, Lemon & Verhoef, 2004).

Service providers strive to make their clients' lives easier, which leads to increased productivity and satisfaction (Tsou & Hsu, 2017). Servqual and its assessment have been determined to be relevant in higher education in several research (O'Neill & Palmer, 2004). In higher education, online learning has developed as a viable alternative to traditional teaching methods. As a result, Ali et al. (2011) sees online learning as a way to provide online education services.

Argüelles, Blanco & Castán (2013) investigated how important characteristics of e-learning Servqual influence e-learning Student loyalty (SL) via the mediating function of e-learning student satisfaction. According to Argüelles & Busquet (2016), service has a statistically significant influence on the perception of e-learning Servqual, satisfaction, and loyalty. There is a positive relationship between overall e-learning Servqual, e-learning student satisfaction, and e-learning SL (Pham et al., 2019). The study by Latif, Bunce, and Ahmad (2021) revealed that a university's social responsibility improves SL by having a positive effect on the perception of Servqual, student satisfaction, and student trust. Also, Mehrabi et al. (2012) indicated that Servqual impact perceived student satisfaction. According to Helgesen and Nettet (2007), there is a positive correlation between Servqual and student satisfaction and loyalty.

Research conducted by Annamdevula & Bellamkonda, (2016) focused only on testing the role of mediator student satisfactions between Servqual and SL. Then several other studies also discussed Servqual relationships with student satisfaction (Ismanova, 2019; Latif et al., 2021), perceived Servqual

relationships with student loyalties (Annamdevula & Bellamkonda, 2016; Kachwala et al., 2021), and the role of student satisfaction with loyalty (Pham et al., 2018; Ismanova, 2019). However, with a population of students from Universitas Esa Unggul, this study will investigate the impact of e-learning Servqual on SL. Students who trust the Servqual will be more loyal. The study also included factors for student trust, which was employed as a mediator between Servqual and SL.

The objective of this study is to analyze the correlation between Servqual, student satisfaction, student trust, and SL. This research is expected to contribute to the university and provide improvements in Servqual in online learning.

2. LITERATURE REVIEW

Servqual

The necessity of measuring quality in higher education has grown as educational accountability to stakeholders has grown. Servqual in higher education was defined by Neill and Palmer (2004) as "the gap between what students expect to receive and their perceptions of actual delivery." Because of its unique qualities and dimensions, measuring Servqual in higher education is a difficult undertaking (Subrahmanyam et al., 2013). Students are the most affected by the accessible quality of higher education services since they are customers, making them the most significant clients (Abili et al., 2011). Students are the core clients of higher education institutions, according to Yunus et al. (2010), and their needs include learning valuable academic information while receiving quality services. Each school is responsible for providing quality programs or courses that fulfill their demands. Various academics believe that measuring Servqual in the education sector is critical for the interests and outcomes of stakeholders. Another potential advantage is the ease of location and the fun or pleasure of utilizing technology, which can result in time and cost savings, more control over service delivery, reduced waiting time, and perceived higher levels of personalization (Oltwater, 2022).

Student Satisfaction

Student satisfaction can be measured based on the relative quality of experience and the perceived quality of educational services (Weerasinghe et al., 2017). Overall, customer satisfaction factors encompass several aspects, that align with most research, particularly in the context of virtual institutions (Saha & Zhao, 2005; Yang & Peterson, 2004). To begin with, customer service is a critical component of student satisfaction. Therefore, virtual institutions should enhance employee skills to provide appropriate services when needed, and training for providers of services should be prioritized (Dalati & Alchach, 2018; Ganjinia et al., 2012). The accuracy and timeliness of service implementation, providing timely service and the ability to provide accurate information to students to resolve issues, being willing to assist students and deliver prompt services (Kumbhar, 2012). Additionally, students' ease of use of the University's official website and finding desired services and related information are considered major dimensions of satisfaction (Mehrabi et al., 2012). In the present time, through digital media, the spread of satisfied and dissatisfied customer sentiments can occur rapidly. Therefore, customer satisfaction can bring in new customers and increase the likelihood of loyalty, while dissatisfied customers can harm an organization's image and reputation (H. S. Chen & Jai, 2021).

Student Trust

Roud & Gausdal (2019) demonstrated that trust plays a crucial role in enhancing coordination, communication, reliability, and learning. Trust is also depicted as a tendency to have positive expectations regarding the future actions of others (Brattström & Bachmann, 2018). Kunanusorn & Puttawong (2015) found that perceived quality has a significant effect on student trust. In the field of education, student trust can be interpreted as the students' trust in the integrity and reliability of the university. Satisfied students are more inclined to trust their service providers, so increased student satisfaction is often associated with higher levels of trust (Latif et al., 2021).

SL

SL is essential to institutions long-term development (Kilburn et al., 2016). It is vital to emphasize that the cost of retaining current students is far less than the cost of attracting new students. Loyal students are passionately committed to the overall development of the university, as well as their educational programs in particular. They provide feedback and suggestions to improve the quality of instructional programs (Pham et al., 2018). Loyal students encouraged their relatives and friends to enroll in various degrees by spreading the word about the university (Helgesen & Nettet, 2007). Loyal students have a significant role in preserving financial resources for long-term university growth activities such as teaching, research, and services (Hoyt & Howell, 2011).

RELATIONSHIP BETWEEN VARIABLES

The relationship between SERVQUAL and SL

Kachwala et al. (2021) investigated the association between Servqual and SL by examining the elements influencing student satisfaction through the perception of Servqual. They discovered that Servqual is associated with long-term student happiness and loyalty. According to Ataburo et al. (2017), electronic services should be built to allow for interactive information flow between clients and service providers. They found that e- Servqual is closely related to customer satisfaction and loyalty, as it provides customers with a highly satisfactory experience in terms of interactive information flow. Loyalty in educational services requires the development of strong relationships with students, which ultimately provides a financial foundation for future academic activities of the university (Annamdevula & Bellamkonda, 2016). Previous higher education research has generally focused on Servqual, satisfaction, and loyalty. There have been studies on SL in the university sector, including behavioral intentions, retention, and word-of-mouth publicity (Helgesen & Nettet, 2007). Based on the preceding explanations, the following hypothesis can be inferred:

H1: Servqual has a positive influence on SL.

The relationship between SERVQUAL and student satisfaction

Iqbal et al. (2018) discovered substantial results in the correlation between Servqual and customer satisfaction. Several previous studies have confirmed that the quality of e-learning services influences e-learning student satisfaction (Pham et al., 2019). Furthermore, in the online learning environment, universities are needed to consistently improve the quality of e-learning services in order to provide student satisfaction (Lee, 2010). During the COVID-19, Baber (2020) discovered that students view learning as a factor of student satisfaction. To achieve student satisfaction, institutions must first understand how students perceive the attributes of e-learning Servqual and then take the appropriate activities to jointly improve e-learning Servqual in order to achieve student satisfaction with e-learning. Meanwhile, Ramayah and Lee (2012) determined that system, information, and Servqual all had a strong beneficial influence on user satisfaction in e-learning systems. Based on the preceding explanations, the following hypothesis can be inferred:

H2: SERVQUAL has a positive influence on student satisfaction.

The relationship between SERVQUAL and Student Trust

Meanwhile, it is well recognized that student trust is significantly influenced by the perception of quality (Kunanusorn & Puttawong, 2015). According to Hassan et al. (2020), Servqual has a considerable association with trust. User confidence affects the continuous positive feelings or attitudes of users and their trust in the Servqual. Servqual has dimensions that are capable of instilling trust in the customers' minds (Chiu et al., 2019). Trust refers to the dependency maintained by users on the quality of service. Good Servqual is connected with the expectation that the quality will be maintained in the future (Latif et al., 2021). The following hypothesis can be drawn from the above explanation:

H3: Servqual has a positive influence on student trust.

The relationship between Student Satisfaction and SL

Providing high-quality education services leads to student satisfaction, which contributes to SL (Argüelles & Busquet, 2016). SL is critical to the long-term development of universities (Kilburn et al., 2016). Loyalty in the sphere of education services necessitates the creation of strong relationships with students, which ultimately provides the financial foundation for the university's academic activities in the future (Annamdevula & Bellamkonda, 2016). Loyal students are committed to contributing to the overall development of the university and, in particular, to their educational programs, by providing comments and ideas aimed at improving educational program quality (Pham et al., 2018). In order to offer student satisfaction, universities in the e-learning environment are required to consistently improve the quality of e-learning services (Lee, 2010). Several studies in both traditional and online firms support the notion that customer satisfaction increases customer loyalty (Dehghan et al., 2014). According to e-learning research (Pham et al., 2019), student satisfaction is likely to lead to increased SL. Based on the preceding explanations, the following hypothesis can be inferred:

H4: Student satisfaction has a positive influence on SL

Based on H2 and H4 above, it is possible that student satisfaction may mediate the relationship between SERVQUAL and SL.

The Relationship between Student Trust and SL

Loyalty has become a contemporary management issue, as found by Hassan et al. (2020), loyalty is influenced by technology trust. To maintain existing customer loyalty, service providers can position their services to be better than the standard over time. Companies must be watchful in order to retain clients and create trusting connections with them (Huang & Rust, 2017). According to a study conducted by Latif et al. (2021), strong trust is related with enhanced loyalty. Trust and loyalty can strengthen the university's reputation and lead to favorable attitudes and actions among students. The following hypothesis can be drawn from the above explanation:

H5: Student trust has a positive influence on SL

Based on the above hypotheses (H3 and H5), it is proposed that student trust may mediate the relationship between Servqual and SL.

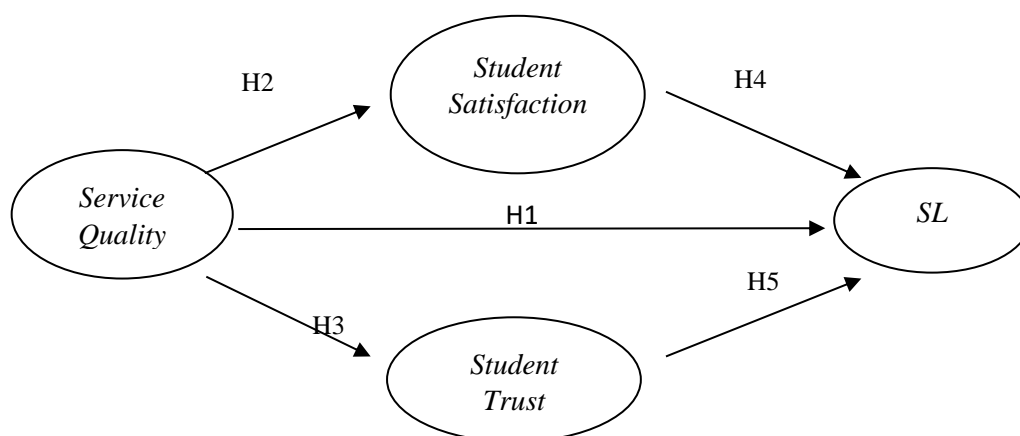


Figure 1. Research Methodology

3. METHOD

As a one-time data collection strategy, an online questionnaire disseminated through Google Forms was used for this research. The questionnaire was scored on a Likert scale of 1 to 7, with 1 being strongly disagree and 7 being strongly agree (Hair et al., 2017). Servqual was adapted from Ismail et al. (2012), who used 5 questions, and Y. H. Chen and Chengalur-Smith (2015), who used 3 questions. Leon et al. (2020) used a three-question variable called Student Satisfaction. With four questions, the

variable of Student Trust was adapted from Hennig et al. (2001). SL was adapted from Dehghan et al. (2014), who used three questions, Zeithaml et al. (1996), who used one statement, and Kashif et al. (2015). The variable of SL was adapted from Dehghan et al. (2014), which included three questions, Zeithaml et al. (1996), which included one statement, and Kashif et al. (2015), which included one statement. As a result, a total of 19 items were measured, the details of which may be found in the operational variables in Appendix 2 and the questionnaire in Appendix 3. The research's population consisted of active Esa Unggul University students who participated in E-learning at Esa Unggul. As a result, this study used the Structural Equation Model (SEM), where the sample size is determined by multiplying the number of items by 5 (Hair et al., 2017), resulting in a sample size of 95 respondents.

Validation tests were carried out by assessing the Kaiser-Meyer-Olkin (KMO) and Measure of Sampling Adequacy (MSA) values. These measurements were used to determine the dependability of each question in the questionnaire. The MSA and KMO values were more than 0.5, indicating that the factor analysis was acceptable. Cronbach's Alpha was used to conduct reliability tests. Cronbach's Alpha nearing 1 suggests greater dependability and consistency (Hair et al., 2014). All of the statements in the variables of Servqual, student satisfaction, student trust, and SL were found valid based on the results of validity and reliability tests. Therefore, the 19 statements used in this research were considered reliable and valid for the questionnaire

4. RESULTS AND DISCUSSION

Using the empirical standard of discriminant validity, it is shown that the latent variables have differences from one another, or each latent variable has differences among its indicators. The Cross Loading values of each latent variable indicator can explain the discriminant validity test. The correlation of Cross Loading values indicates the relationship between an indicator and its construct and the other constructs. The correlation values between indicators and other latent variables should be lower than the correlation values between indicators and their related latent variables. Therefore, Smart-PLS data processing reveals that all variables match the criterion for good discriminant validity.

Internal consistency reliability in SEM-PLS can be determined by studying the composite reliability values. A composite dependability score greater than 0.7 is regarded dependable (Hair et al., 2017). The size of the Average Variance Extracted (AVE) can be calculated by analyzing the outer loading values in the loading factor table. Loading factor values more than 0.7 and AVE values greater than 0.5 are the accepted requirements for convergent validity (Hair et al., 2017). All variables in this study have CR values greater than 0.70 and AVE values greater than 0.50, including Servqual (CR=0.951; AVE=0.735), Student Satisfaction (CR=0.877; AVE=0.704), Student Trust (CR=0.895; AVE=0.740), and SL (CR=0.926; AVE=0.716).

The structural analysis results can then be analyzed by looking at the R² values. In each equation, the R² indicate how well the independent variables provide explanations for the dependent variable. Servqual, student satisfaction, and student trust may explain 77.6% of the variance in SL, with the remaining 22.4% explained by variables not investigated in this study, according to the SEM results. The element of Servqual can explain 66.3% of the variance in student satisfaction, with the remaining 33.7% explained by variables not investigated in this study. In addition, the Servqual variable explains 59.1% of the variance in student confidence, with the remaining 40.9% explained by variables not examined in this study. This study used significance testing, as evidenced by the route coefficient significance results. The bootstrapping technique was utilized with Smart-PLS software to obtain the significant values of the route coefficients. Hair et al. (2017) state that a significant effect can be demonstrated if the T statistic value is greater than the critical T value (e.g., 1.960 at a 5% significance level) and the p-value is less than 0.05. The original sample data can be used to determine the direction of the association.

Hipotesis	Hypothesis Statements	T Statistics (O/STDEV)	P Values	Description
H1	SERVQUAL has a positive influence on SL	2,111	0,035	The data supports the hypothesis.

H2	SERVQUAL has positive effects on student satisfaction.	17,443	0,000	The data supports the hypothesis.
H3	SERVQUAL has a beneficial impact on student trust.	15,623	0,000	The data supports the hypothesis.
H4	Student satisfaction has a positive effect on SL.	3,740	0,000	The data supports the hypothesis.
H5	Student trust has a positive effect on SL.	3,259	0,001	The data supports the hypothesis.

Table 1. Hypothesis Test Results

Source: Data analysis results from Smart-PLS, 2023.

According to the hypothesis testing table above, the T-value is greater than 1.960 and the p-value is less than 0.05 for all variables. As a result, the data in this study validates all of the research hypotheses that have been offered.

There are two intervening variables in this study that effect the connection between the independent variables and the dependent variable indirectly. The findings of the Smart-PLS study with the bootstrapping technique are detailed in the table below.

	T Statistics (O/STDEV)	P Values
SQ -> SS -> SL	3,766	0,000
SQ -> ST -> SL	3,034	0,003

Table 2. Indirect Effect Results

Source: Researcher's data analysis, 2023.

Based on the table above, it is possible to conclude that the relationship between Servqual and SL is mediated by student happiness, as evidenced by the T statistic value of 3.766 > 1.960 and a p-value of 0.000 < 0.05. Furthermore, as demonstrated by the resulting T statistic value of 3.034 > 1.960 with a p-value of 0.003 < 0.05, the association between Servqual and SL is also mediated by student trust.

Discussion

The intention of this study is to assess the influence of e-learning Servqual on SL at Universitas Esa Unggul, as well as to investigate the function of student happiness and student trust as mediators in the connection between Servqual and SL. The following are some of the study's findings:

The first finding indicates a link between Servqual and student satisfaction. Improved university Servqual leads to greater student satisfaction (Annamdevula & Bellamkonda, 2016). The quality of Universitas Esa Unggul's e-learning offerings exceeds students' expectations.

The second study indicates that Servqual influences student trust positively. Improved Servqual influences students' trust (Ismanova, 2019). Students regard the university's e-learning professionals as responsible and have great faith in them.

The final finding indicates that student pleasure influences SL positively. Student happiness has a substantial influence on SL (Annamdevula & Bellamkonda, 2016). Students who are satisfied with their e-learning experience at Universitas Esa Unggul are more likely to be loyal.

The fourth finding demonstrates that student trust influences SL positively. Increased student trust has a favorable effect on SL (Ismanova, 2019). Students believe that the university professionals in charge of e-learning always operate in their best interests, which leads them to recommend e-learning at Universitas Esa Unggul to others.

The fifth discovery indicates a link between Servqual and SL. Higher Servqual increases SL (Annamdevula & Bellamkonda, 2016; Kachwala et al., 2021). Students evaluate the quality of services provided by Universitas Esa Unggul in the phases of completing work on the e-learning platform to be logical and well-organized, which influences their decision to choose the institution given the possibility.

The sixth finding emphasizes the importance of student satisfaction as a moderator in the connection between Servqual and SL. Previous research conducted by Annamdevula and Bellamkonda (2016) indicates that good Servqual in e-learning has an influence on SL, which is mediated through student satisfaction.

According to the eighth finding, Servqual can influence SL through student trust. The relationship between Servqual and SL is mediated by student trust. (Ismanova, 2019). Students have faith in the e-learning staff and believe that the quality of service in e-learning at Universitas Esa Unggul is excellent, which leads them to recommend e-learning services to others.

These findings add to a deeper understanding of the links between Servqual, student satisfaction, student trust, and SL at Universitas Esa Unggul in the context of e-learning

5. CONCLUSION

The findings of this study verified all of the research hypotheses, indicating a link between Servqual and SL. Servqual and SL have been found to be moderated by student enjoyment and trust. According to the first hypothesis of this study, Servqual has a favorable impact on SL. As a result, it is reasonable to believe that the quality of Universitas Esa Unggul's e-learning services has a major influence on SL. As their dedication to the institution develops, students are increasingly happy with the level of e-learning services they get. Furthermore, the higher the degree of student confidence, the higher the level of quality of e-learning service. SL grows in tandem with improvements in e-learning SERVQUAL, which is backed by student happiness and trust. Currently, e-learning plays an important part in student learning, thus universities are focusing on providing the best services to increase student happiness, trust, and loyalty.

This study has some limitations that can be addressed in future research, such as the fact that it was only conducted at Universitas Esa Unggul. To acquire a thorough picture of e-learning across different institutions, future study should include a population from more than two universities. Second, this study focused only on student satisfaction and student trust, with Servqual as an independent variable. Future research could explore other elements such as values, image, or university reputation that may directly impact SL.

This study has various managerial implications that are critical for increasing SL: firstly, considering the significant role of e-learning Servqual in increasing SL, efforts should be made to ensure a modern and visually appealing e-learning interface, visually attractive course materials, prompt and accurate service, easily understandable steps in completing tasks on the e-learning platform, and fast loading of Servqual. Maintaining a modern and visually appealing e-learning interface should be a priority and can be accomplished by employing skilled staff. Secondly, as Servqual and SL are shown to be stronger when there is trust from students, universities should pay attention to the staff managing the e-learning platform to ensure they have a strong sense of responsibility, act in the best interest of students, and are trustworthy.

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