ASSESSING THE EFFECT OF ONLINE LEARNING SERVICE QUALITY ON CUSTOMER RETENTION THROUGH CUSTOMER SATISFACTION AS A MEDIATION VARIABLE IN THE CULINARY STUDY PROGRAM BACHELOR DEGREE DURING THE COVID-19 PANDEMIC

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Abstract: This quantitative study explores the relationship between online learning service quality, customer satisfaction, and customer retention in the Culinary Study Program during the Covid-19 pandemic. Using data from 217 students in a private university, specifically in Surabaya. The analysis employed in this study is Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the relationship between variables, including the measurement model (outer model) for validity and reliability testing and the structural model (inner model) for hypothesis testing and mediation analysis. The research reveals a significant direct effect of online learning service quality on customer satisfaction. Additionally, the study establishes a significant indirect effect of online learning service quality on customer retention through customer satisfaction as a mediation variable. These findings offer insights for educational institutions to enhance service quality and customer satisfaction, focusing on dimensions such as content, system functionality, and interaction quality. Implementing strategies to prioritize student satisfaction can improve online learning effectiveness during challenging times like the Covid-19 pandemic. Overall, this study emphasizing the importance of high-quality online learning experiences for student satisfaction and retention in the Culinary Study Program during the Covid-19 pandemic.

Keywords: Customer Retention, Customer Satisfaction, Culinary Entrepreneurs, Online Learning Service Quality

INTRODUCTION

The field of education has witnessed a significant transformation with the advent of online learning, particularly in response to the challenges posed by the COVID-19 pandemic. Online learning, also known as e-learning, has emerged as a powerful tool for educational institutions to adapt and continue delivering quality education remotely. The Culinary Study Program, like many other academic programs, has embraced online learning to ensure the continuity of education and meet the needs of students during these unprecedented times.

The quality of online learning services plays a crucial role in determining student satisfaction and retention in the Culinary Study Program. The shift from traditional face-to-face classrooms to online platforms has raised important questions about the effectiveness and impact of this transition on various aspects of the program, including the satisfaction of students, the success of the program, and the retention of students. Understanding the relationship between online learning service quality, customer satisfaction, and customer retention is essential to ensure the program's viability and success.

Several studies have explored the relationship between online learning service quality and customer satisfaction in various educational contexts. For example, research conducted by Al-Samarraie et al. (2019) indicated that higher levels of service quality, including content quality, system quality, and interaction quality, significantly contribute to increased student satisfaction in e-learning environments. Similarly, Bhuasiri et al. (2012) emphasized the importance of effective delivery of online learning services, such as course content quality and technology infrastructure, in influencing student satisfaction and retention. While existing literature provides valuable insights into the relationship between online learning service quality and customer satisfaction, limited research has specifically focused on the Culinary Study Program and its unique challenges during COVID-19 pandemic. Therefore, this study aims to bridge this research gap by investigating the impact of online learning service quality on customer satisfaction and customer retention within the Culinary Study Program.

Additionally, choosing a private university as the research object is based on several factors. Firstly, private universities often have unique characteristics and approaches to e-learning compared to public universities, which could provide valuable insights into the specific challenges and strategies in delivering online culinary education. Secondly, private universities often have more flexibility and autonomy in designing and implementing their e-learning systems, making them an ideal setting to examine the quality of online learning services and their impact on student satisfaction and retention. Lastly, focusing on a private university allows for a more focused and manageable scope of research, enabling a deeper analysis of the specific dynamics and intricacies involved in the Culinary Study Program's online learning environment.

The primary objective of this study is to examine the relationship between the online learning service quality, customer satisfaction, and customer retention in the Culinary Study Program during the COVID-19 pandemic. The study will investigate the direct effect of online learning service quality on customer satisfaction and the indirect effect mediated by customer satisfaction on customer retention. By addressing the challenges posed by the transition to online learning in the culinary field, this research will contribute to a better understanding of the importance of delivering high-quality online learning experiences and its implications for student satisfaction and program viability. The findings will provide valuable insights and recommendations for the Culinary Study Program and other similar academic programs to enhance online learning service quality, improve student satisfaction, and foster long-term customer retention.

Overall, this study aims to shed light on the relationship between online learning service quality, customer satisfaction, and customer retention within the Culinary Study Program. The findings will contribute to the existing body of knowledge on online learning in the culinary field and provide practical recommendations for program administrators and educators to enhance the quality of online learning services and ensure the success and satisfaction of students during the COVID-19 pandemic and beyond.

LITERATURE REVIEW
Service Quality

Although the true breadth of this attitude is not uniformity of opinion, service quality is generally seen as a global attitude or appraisal of the superiority of services. The first researchers to introduce the ten service quality characteristics were Parasuraman et al. (1988). This SERVQUAL (Service Quality) is a multi-item scale with several questions to measure respondents' perceptions of service quality. Service quality dimensions include tangibility, responsiveness, reliability, competence, access, courtesy, communication, credibility, security, and comprehension. Additionally, Parasuraman et al. (1988) reduced the number of dimensions to five: tangibility, empathy, responsiveness, reliability, and assurance in their subsequent paper. These dimensions are explained as (1) Physical evidence (tangibles), including physical facilities, equipment, and employees. (2) Reliability, or the staff's capacity to deliver the promised service and do it satisfactorily. (3) Responsiveness, or the staff's desire to assist clients and offer responsive services. (4) Confidence includes the staff members' expertise, competence, civility, and reliability; (5) Empathy includes ease of interaction, effective communication, individualized attention, and comprehension of customers' needs. Over the years, researchers have employed these five characteristics and their indicators to gauge the service quality in the salon, spa, telecommunications, and restaurant industries (Fen and Lian, 2007; Akbar and Parvez, 2009; Puung et al., 2014).

As the technology emerges, it successfully identifies the aspects of online service quality required by businesses engaged in the e-commerce. These aspects are utilization, content, structure, linkage, search, and appearance in e-commerce and other sectors that provide services. The business's primary product needs service quality to maintain their customer, including education sector. With the technology being integrated, online learning is one of the essential components in a higher education setting. With this approach, education can occur anywhere and is not dependent on classroom interactions between lecturers and students (Uppal et al., 2018). In the previous study, Pham et al.

(2019) used three aspects of online learning services: the system, instructors and course materials, and the administrative and support services mentioned, respectively. The quality of online learning must be measured to ensure customer satisfaction, here stated as student satisfaction.

Customer Satisfaction

Satisfaction reflects the customers' response when comparing the expectation with the experience after utilizing the product or service offered by a company (Irfansius and Firdausy, 2021). According to Parasuraman et al. (1988), satisfaction happens when the expected service is the same or lower than the perceived service. Furthermore, the company must maintain customer satisfaction to succeed and survive the tight market rivalry (Fen and Lian, 2007; Yap and Kew, 2007). Hence, the company needs to assume customers as the assets that can generate profits by maintaining satisfaction and retention (Anderson and Mittal, 2000).

Customer Retention

The customer retention refers to a customer's propensity to continue using a product or service in the future (Ranaweera and Neely, 2003). Customer retention and the attractiveness of new consumers are the key drivers for growing market share and revenue, according to Rust et al. in Khan and Kadir (2011). Consumer retention is utilized to alter customer behavior or convert disgruntled customers into long-term, devoted business supporters (Hasan, 2018).

Hume et al. (2007) defined customer retention as the choice of consumers to engage in additional activities with a service provider in the future and the nature of those activities. Moreover, Hume also explained that consumer views and behavior about the quality of their services determine the client retention. Therefore, it may be inferred that consumers' interest in repeat purchases reflects their desire to do business with or return to the same company (Hume et al., 2007). In the education sector, Atif et al. (2013) explained that customer retention is the ability of the university to maintain the students from the beginning until graduation.
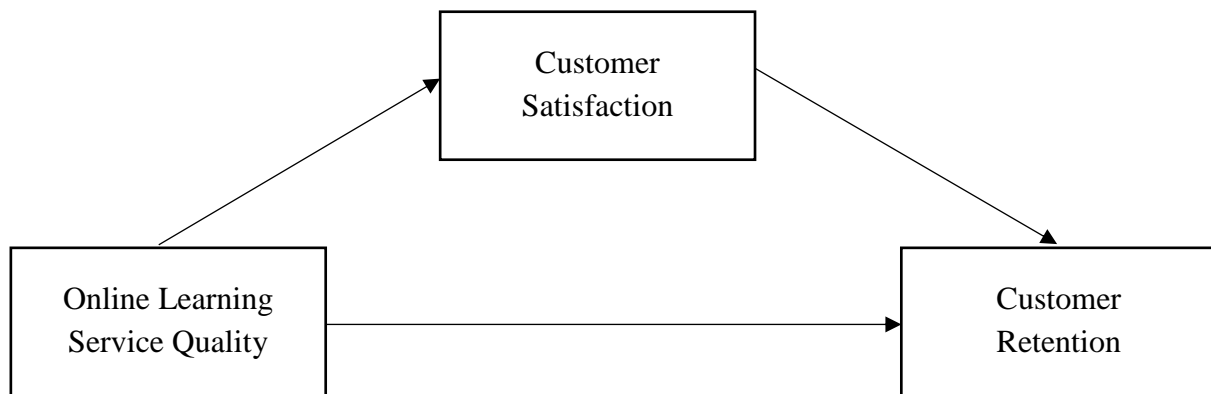
Figure 1. Research Framework

HYPOTHESIS DEVELOPMENT
Online Learning Service Quality on Customer Satisfaction

The literature review provides a strong evidence supporting the hypothesis that online learning service quality has a significant direct effect on customer retention in the Culinary Study Program during the Covid-19 pandemic. The studies emphasize the importance of high-quality online learning services in promoting student satisfaction and intention to continue with the e-learning, ultimately impacting retention. Al-Samarraie et al. (2019) investigate the effects of service quality dimensions on e-learning continuance satisfaction. They find that higher levels of service quality, including content quality, system quality, and interaction quality, significantly contribute to increased student satisfaction and intention to continue with e-learning. It suggests that providing high-quality online learning services influences student retention directly.

Bhuasiri et al. (2012) compared critical success factors for e-learning in developing countries. They identify service quality as a key factor influencing the student satisfaction and retention. The effective delivery of online learning services, including the quality of course content, technology infrastructure, and support services, is found to have a significant impact on student retention. This study emphasizes the importance of high-quality online learning services in promoting student satisfaction and long-term engagement.

Chiu et al. (2005) investigated the factors influencing users' continuance decisions in e-learning contexts. They examine the impact of usability, system quality, information quality, and service quality on user satisfaction and intention to continue using the e-learning platforms. The findings highlight that service quality, including responsiveness, reliability, and personalized support, significantly affects user satisfaction and their decision to continue with e-learning. It supports the notion that high-quality online learning services can directly influence the user retention. These studies strongly support the hypothesis by demonstrating that online learning service quality, encompassing content quality, system functionality, and support services, is crucial in influencing student satisfaction and retention in the Culinary Study Program during the Covid-19 pandemic.

H1: There is a significant direct effect of online learning service quality on customer satisfaction.

Online Learning Service Quality and Customer Retention

The emergence of online learning has transformed educational practices, and understanding the factors that influence student retention in this context is crucial. This literature review combines three studies that examine the relationship between online learning service quality, satisfaction, and customer retention in the different domains, namely Massive Open Online Courses (MOOCs), mobile banking, and Internet banking. Wu and Chen (2017) investigated students' continuance intention to use MOOCs by integrating the Technology Acceptance Model (TAM) and Task Technology Fit (TTF) model. The study highlights the mediating role of satisfaction and demonstrates that satisfaction significantly mediates the relationship between perceived usefulness, perceived ease of use,

and continuance intention to use the MOOCs. This finding suggests that satisfaction mediates between online learning service quality and student retention.

Al-Samarraie et al. (2019) conducted a study exploring the effects of the service quality dimensions on the e-learning continuance satisfaction. The findings revealed that higher levels of service quality, including content quality, system quality, and interaction quality, significantly contribute to increased student satisfaction and intention to continue with e-learning. It suggests that high-quality online learning services directly influence student retention in e-learning.

Bhuasiri et al. (2012) investigated critical success factors for e-learning in developing countries. The research identified service quality as one of the key factors influencing student satisfaction and retention in e-learning environments. Effective delivery of online learning services, including the quality of course content, technology infrastructure, and support services, was found to have a significant impact on student retention. This study highlights the importance of high-quality online learning services in promoting student satisfaction and long-term engagement.

Chiu et al. (2005) researched usability, quality, value, and e-learning continuance decisions. The study examined the impact of usability, system quality, information quality, and service quality on user satisfaction and intention to continue using e-learning platforms. The findings demonstrated that service quality, including responsiveness, reliability, and personalized support, significantly affected user satisfaction and their decision to continue with e-learning. This study supports that high-quality online learning services can directly influence user retention.

H2: There is a significant direct effect of online learning service quality on customer retention.

Customer Satisfaction and Customer Retention

Yilmaz and Ferman (2017) concluded that consumer satisfaction, company trust, and reputation positively influence consumer retention in the textile industry. Another study in the food and beverage service industry states that there is a significant relationship between consumer satisfaction

and consumer retention (Sari et al., 2018). In the education sector, research conducted by Eresia-Eke et al. (2020) at private universities states that student satisfaction factors will have a positive and significant effect on student retention.

H3: Customer Satisfaction has a positive effect on Customer Retention

Mediation Role of Customer Satisfaction

The Covid-19 pandemic has necessitated the adoption of online learning in various educational programs, including the Culinary Study Program. Understanding the factors that contribute to customer retention in this context is essential. This literature review focuses on studies investigating the relationship between online learning service quality, customer satisfaction, and customer retention, providing evidence for the hypothesis that customer satisfaction mediates the relationship between online learning service quality and customer retention in the Culinary Study Program during the Covid-19 pandemic.

Overall, these studies provide significant evidence supporting the hypothesis that customer satisfaction mediates the relationship between online learning service quality and customer retention in the Culinary Study Program during the Covid-19 pandemic. The literature highlights the importance of the service quality dimensions, such as content quality, system quality, interaction quality, responsiveness, and reliability, in influencing customer satisfaction. By providing high-quality online learning experiences, the Culinary Study Program can enhance customer satisfaction, which plays a crucial role in customer retention. Understanding this mediating effect is vital for designing effective strategies to improve online learning service quality and enhance customer retention in the Culinary Study Program.

In a study by Zhou (2013) that focuses on the mobile banking, the factors influencing users' adoption of the service are examined. The research emphasizes the mediating role of satisfaction and reveals that satisfaction mediates the relationship between trust, habit, and mobile banking adoption. The study underscores that higher service quality and trust lead to increased satisfaction, which, in turn, influences users' intention to continue using the service. It supports the notion that satisfaction acts as a mediator between the online service qual-

ity and customer retention.

Additionally, Alalwan et al. (2017) investigated the adoption of Internet banking and the role of satisfaction as a mediating variable. The study highlights the significant mediating role of satisfaction between hedonic motivation, habit, self-efficacy, trust, and the intention to adopt the Internet banking. The findings indicate that positive online service experiences resulting in higher satisfaction levels contribute to customer retention.

These studies provide substantial evidence supporting the hypothesis that online learning service quality has a significant indirect effect on customer retention through customer satisfaction as a mediation variable in the Culinary Study Program during the Covid-19 pandemic. By drawing upon various domains such as MOOCs, mobile banking, and Internet banking, the literature highlights the consistent role of satisfaction as a mediator between the online service quality and customer retention. It underscores the importance of providing high-quality online learning experiences to enhance satisfaction, ultimately influencing student retention in the Culinary Study Program.

H4: Customer satisfaction mediates the relationship between online learning service quality and customer retention in the Culinary Study Program during the Covid-19 pandemic.

METHOD

This research used the quantitative technique approach. Sugiono (2017) and Supiandi et al. (2023) explained that this approach is grounded in positivism, which holds that reality or symptoms may be observed and assessed. In quantitative research, data on populations and samples are gathered using research equipment, then examined quantitatively and statistically to test predetermined hypotheses. PLS-SEM will be used in this study's data processing.

The research took place in Culinary Study Program at one of the private universities in Surabaya from February 2022 to April 2022. According to Sugiono (2017), the population is an area for generalization that consists of things or individuals with particular amounts and qualities chosen by researchers to be studied before conclusions are reached. Two hundred forty-two active students from the batches from 2019 to 2021 made up the population for this study. The computation utiliz-

ing the Slovin formula will determine the number of samples needed, provided that the population's size is known. Using the Slovin formula, the number of samples required for the study is calculated as follows:

$$n = \frac{N}{1 + N(e^2)}$$

$$n = \frac{242}{1 + 264(0.05^2)} = 151 \; Respondents$$

Where:
n = Number of samples studied
N = Total samples available
e = Margin of error in research

Two hundred and seventeen answers from the students were valid and chosen to participate in the study. The researcher used the online questionnaire to gather the primary data for this study. In addition to the questionnaire, secondary data such as books, previous studies, and journals were used. The questionnaire will have a few statements that respondents must rate on a Likert scale. An individual or group's views, attitudes, and opinions on the social events or phenomena can be measured using the Likert scale. The scale consists of the stratified indicator from very positive to very negative to characterize the answers.

The Partial Least Square (PLS) tool will be used in this study's statistical analysis of the Structural Equation Model (SEM). SEM is a multivariate data analysis technique that is helpful for the researchers to analyze the link between latent variables, according to Marliana (2020). The measurement model (outer model) with validity and reliability and the structural model (inner model) with hypothesis testing will be used in SEM-PLS.

The validity and reliability test examines the link between the variables and the indicators that make up each variable in the outer model. The validity test is essential because the validity will demonstrate the acceptance of the findings in the research, Sitio (2021). On the other hand, the inner model test seeks to assess the connection between the latent variables associated with the research analysis model. Exogenous and endogenous latent variables are the two latent variables used in the

inner model test. Resampling with the bootstrap method will be used in the statistical test to determine the relationship in this study (Prapcoyo et al., 2018).

Table 1. Operational Variable of Online Learning Service Quality

Indicators

1. Course Content: Measure the quality of online learning services by assessing the relevance, accuracy, comprehensiveness, and up-to-dateness of the course content provided to students.

2. User-Friendly Platform: Evaluate the online learning service quality based on the ease of navigation, intuitiveness, and user-friendliness of the online learning platform or learning management system.

3. Interaction and Engagement: Assess the online learning service quality by measuring the level of interactivity and engagement offered to students, including features such as discussion forums, live chat sessions, multimedia content, and collaborative activities.

4. Timely and Responsive Support: Measure the quality of online learning service by evaluating the responsiveness and timeliness of support provided to students, including technical support, academic assistance, and prompt response to queries or concerns.

5. Assessment and Feedback: Assess the quality of online learning service by examining the effectiveness and fairness of the assessment methods used and providing timely and constructive feedback to students on their performance.

6. Accessibility and Availability: Evaluate the online learning service quality based on the accessibility and availability of course materials, resources, and learning activities, ensuring that they are easily accessible and available to students when needed.

7. Technology Infrastructure: Measure the quality of online learning service by evaluating the reliability, speed, and performance of the technology infrastructure supporting the online learning platform, including server stability, bandwidth capacity, and smooth functioning of multimedia elements.

8. Personalization and Customization: Assess the online learning service quality by examining the extent to which the platform offers personalized and customized learning experiences, such as adaptive learning paths, personalized recommendations, and tailored content based on individual student needs.

9. Instructor/Facilitator Support: Measure the quality of online learning service by evaluating the availability, expertise, and responsiveness of instructors or facilitators in supporting students' learning needs, providing guidance, feedback, and timely assistance.

10. Clear Communication: Assess the online learning service quality by examining the clarity, effectiveness, and frequency of communication between instructors/facilitators and students, as well as among students themselves, ensuring that important information and updates are communicated clearly and promptly.

Source: Uppal et al. (2018), Demir et al. (2021), Wu and Lin (2012), and Silva et al. (2017)

Table 2. Operational Variable of Customer Satisfaction

Indicators

1. Perceived Course Effectiveness: Assessed by students' perception of how well the online learning experience meets their educational needs and contributes to their learning outcomes.

2. Instructor/Facilitator Satisfaction: Measured by students' satisfaction with the quality of instruction, guidance, and feedback provided by the instructors/facilitators in the online learning program.

3. Technical Support Satisfaction: Assessed by students' satisfaction with the support received from technical staff for technical issues or difficulties encountered during the online learning process.

4. Course Material Satisfaction: Measured by students' satisfaction with the relevance, clarity, and organization of the course materials provided in the online learning platform.

5. Overall Satisfaction: Assessed by students' overall evaluation of their online learning experience, considering various aspects such as course content, delivery, interaction, and support.

Source: Chairunnisa (2018), Munteanu et al. (2010), Lee and Tai (2008), and Rahayu (2018)

Table 3. Operational Variable of Customer Retention

Indicators

1. Enrollment Persistence: Measure customer retention by tracking the percentage of students who continue enrolling in subsequent courses or semesters within the Culinary Study Program.

2. Course Completion Rate: Assess customer retention by calculating the percentage of students who complete the online courses or programs offered by the Culinary Study Program.

3. Repeat Enrollment: Measure customer retention by tracking the number of students who re-enroll in the Culinary Study Program for additional courses or programs after completing their initial enrollment.

4. Time to Degree/Program Completion: Evaluate customer retention by measuring the average time students take to complete their degree or program within the Culinary Study Program.

5. Graduation Rate: Assess customer retention by calculating the percentage of students who successfully graduate from the Culinary Study Program.

6. Alumni Engagement: Measure customer retention by evaluating the level of engagement and involvement of program alumni in activities, events, and initiatives organized by the Culinary Study Program.

7. Referral Rate: Assess customer retention by tracking the number of students who refer the Culinary Study Program to their friends, family, or colleagues, indicating a high level of satisfaction and likelihood to recommend the program.

8. Career Placement/Success: Evaluate customer retention by measuring the percentage of students who secure relevant employment or experience career advancement opportunities within the culinary industry after completing their studies in the Culinary Study Program.

9. Alumni Feedback and Surveys: Measure customer retention by conducting surveys or collecting feedback from program alumni to assess their level of satisfaction, perception of value, and likelihood to remain connected and engaged with the Culinary Study Program.

Source: Alshamsi et al. (2021) and Mashenene et al. (2019)

RESULTS
Convergent Validity

The average variance extracted (AVE) value greater than 0.5, accompanied by the loading factor value greater than 0.7, represents the constructs that demonstrate a high validity. The AVE estimates for overall online learning service quality, customer satisfaction, and customer retention were 0.560; 0.668; 0.633, respectively. Since all latent variables have an AVE value > 0.5, it is clear from the table above that the convergent validity was met.

Loading Factors

The latent variable used in this study, which measures the quality of the online learning services, explains as the learning management system (LMS), lecturers, facilitators, tutors, and materials, as well as administration and support services. Seven LMS dimension indicators were dropped because the value didn't meet the standard of 0.7. This elimination is done because of the operational condition of the study program that has not fully adapted to a full online learning course from the conventional one, both from the lecturers and students.

The latent variable used in this study, which measures the quality of the online learning services, is explained as the learning management system (LMS), lecturers, facilitators, tutors, materials, administration, and support services. The result from the study dropped Seven LMS dimension indicators because the value did not meet the standard of 0.7. This elimination took place because of the operational condition of the study program that has not fully adapted to a new education environment from the conventional one to online learning courses (especially for practical classes that need intense communication in the class), both from the lecturers and students. Both parties found it simpler to communicate directly through video conferencing for the virtual classes instead of using the learning management system to deliver the materials. Operating a learning management system was a sudden change in daily activity, and lecturers' found it challenging to keep up with the newest technology quickly. One of the essential parts of the LMS is keeping the materials attractive, such as

attaching interactive videos. Most of the lecturers are not able to meet the condition because of the technology restrain. The need for interactive material is also consistent with research by Muthuprasad et al. (2021), which found that students believe reading material combined with lectures' interactive videos explains an excellent way to deliver content through a learning management system.

The lecturers, facilitators, tutors, and materials covered during the online lecture period are covered in the second dimension of latent variable of online learning service quality. The highest loading factor values, corresponding to 0.705, 0.763, 0.807, and 0.759, are indications of lecturers' capacities to deliver interactive lessons as well as ac-

tivities that involve the students, pay attention to student needs, and present materials that can be implemented for students' projects in the future. The Culinary Study Program has a strong relationship with the four indicators because of the practical nature of the course and the use of project-based learning, which gives students more room for discussion, the application of learning, and mentoring concerning ongoing projects. Students will also practice the fundamental concepts they learned in class when working on related projects or taking more challenging courses the following semester. The high level of involvement of lecturers in the online learning process is also consistent with research by Lee et al. (2018).
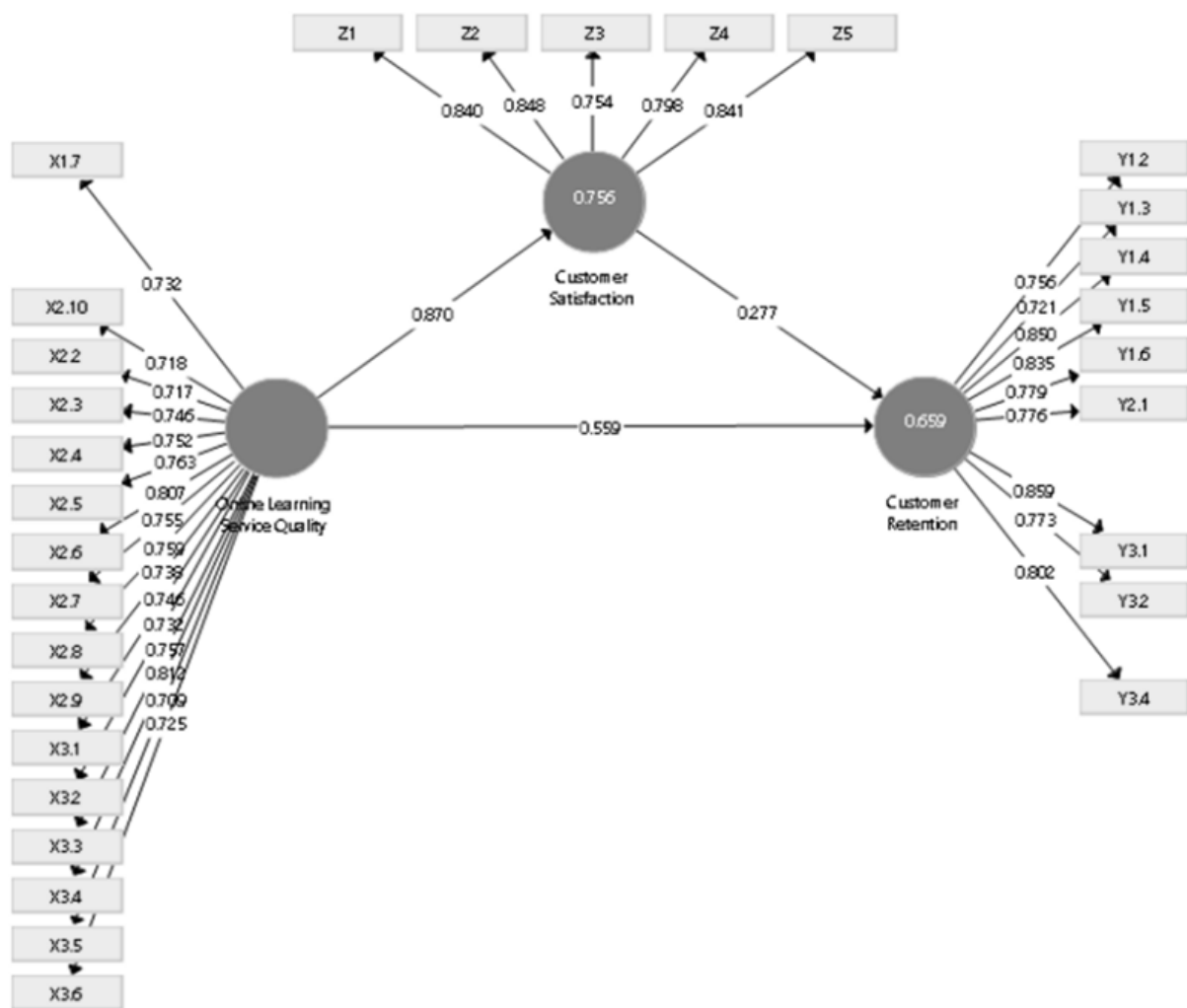
Sourced: Processed Data (2022)

Figure 2. Loading Factors Results

A previous study showed that lecturers would engage in various flexible activities during the online learning, including leading student collaboration activities and having one-on-one conversations or mentoring activities. Due to the importance of the lecturers and materials in the study program, this dimension has become an essential part of the online learning service quality. Administration and support services are the final components of the latent variable for the quality of the online learning service. In this study, a department called Academic Support helps student to meet all the administrative requirements. As a result, the role of academic support in the study program becomes crucial. Thus, the study program with the highest indicator value of 0.812 for addressing academic needs explains a significant amount of the online learning service quality conditions through the administrative and support service aspects.

Customer satisfaction, the second latent variable, has five indicators not removed during the statistical running procedure. The satisfaction of students with the academic support services, lecturers' and the material performance, and overall online learning experience took the top three values for this variable: each worth 0.840, 0.848, and 0.841, respectively.

Customer retention is the exogenous latent variable in this study. The latent variable is explained in three dimensions: individual factors, institutional assessment factors, and social/external variables. The highest loading factor value from the individual factor is the student's satisfaction with the feedback from lecturers, facilitators, and tutors (0.850) and the benefits from the material delivered (0.835). The second dimension, with the pride in participating in the Culinary Study Program, explained the institution's evaluation characteristics to produce retention. Students can freely develop their talents and abilities to deliver the best work through projects provided by the culinary business. In addition, many students' projects involve outside parties and receive media attention, which helps students feel connected to and proud of their chosen projects and majors. Lastly, the positive relationships between fellow students and the students with lecturers, facilitators, tutors, and academic support personnel are the critical explanations for the last dimension of the latent variable of customer retention in the form of social and external

factors. According tofocus groups held every semester, the support of lecturers, staff, and friends is crucial for the project's success and a sense of belonging from the students to the study program.

Discriminant Test

The discriminant test requires demonstrating that the used indicators do not have strong correlations with variables other than the construct variables. The discriminant validity was met, with each indicator having a loading factor value > 0.7 and the highest value corresponding with its latent variables. It is clear from the table 4 that each indicator's loading factor value has a stronger correlation with its corresponding latent variable than it does with the cross-loading of other latent variables. All numbers are higher than 0.7. Therefore, all of the study's indicators met the discriminant validity criteria and could explain the latent variables that matched the indicators.

Reliability Test

The value of Cronbach alpha greater than 0.7 and composite reliability greater than 0.7 demonstrate the high reliability of the research instrument. In this study, the Cronbach alpha for the variable online learning service quality, customer satisfaction, and the customer retention was: 0.948, 0.875, and 0.927, respectively. Alongside those values, the composite reliability of the variables used in this study was: 0.948, 0.909, and 0.953, respectively. From the reliability test, all the values mentioned have met the standard of 0.7 and are considered reliable.

R-Square (R2) and Q-Square (Q2)

The R2 test determines the independent variable's influence percentage on the dependent variable. The latent variable of online learning service quality has a 75.6 percent influence on customer satisfaction, which qualifies as a high influence. Overall, customer retention is impacted by the latent variable online learning service quality and customer satisfaction by 65.9 percent, which is categorized as having a moderate influence. In addition, the Q Square (Q2) value in this study is calculated with the formula. According to the calculations below, the model can describe 75.8% of the observed data, and the remaining portion can be explained by other factors not covered in this stu-

dy. In addition, the Q Square (Q2) value in this study is calculated with the formula.

$$Equation = 1 - (1 - R_1^2) \times (1 - R_2^2)$$

$$= 1 - (1 - 0{,}756^2) \times (1 - 0{,}659^2)$$
$$= 1 - (1 - 0{,}571) \times (1 - 0{,}434)$$
$$= 1 - 0{,}242$$
$$= 0{,}758$$

Table 4. Discriminant Value

Indicator	Customer Retention	Customer Satisfaction	Online Learning Service Quality
X1.7	0.516	**0.672**	**0.732**
X2.2	0.662	**0.615**	**0.717**
X2.3	0.669	**0.584**	**0.746**
X2.4	0.636	**0.603**	**0.752**
X2.5	0.654	**0.614**	**0.763**
X2.6	0.680	**0.659**	**0.807**
X2.7	0.608	**0.632**	**0.755**
X2.8	0.691	**0.644**	**0.759**
X2.9	0.648	**0.589**	**0.738**
X2.10	0.616	**0.560**	**0.718**
X3.1	0.561	**0.642**	**0.746**
X3.2	0.497	**0.675**	**0.732**
X3.3	0.523	**0.711**	**0.757**
X3.4	0.609	**0.773**	**0.812**
X3.5	0.498	**0.703**	**0.709**
X3.6	0.492	**0.721**	**0.725**
Y1.2	**0.756**	0.602	0.592
Y1.3	**0.721**	0.505	0.534
Y1.4	**0.850**	0.641	0.657
Y1.5	**0.835**	0.613	0.700
Y1.6	**0.779**	0.594	0.618
Y2.1	**0.776**	0.580	0.606
Y3.1	**0.859**	0.672	0.699
Y3.2	**0.773**	0.617	0.652
Y3.4	**0.802**	0.625	0.651
Z1	0.700	**0.840**	0.773
Z2	0.621	**0.848**	0.761
Z3	0.523	**0.754**	0.643
Z4	0.528	**0.798**	0.636
Z5	0.716	**0.841**	0.725

Sourced: Processed Data (2022)

Table 5. T Statistic and P Values

Hypothesis	Coefficient	T Statistic	P Values
H1	0.559	6.294	0.000
H2	0.277	2.943	0.003
H3	0.870	50.012	0.000

Sourced: Processed Data (2022)

Table 5. T Statistic and P Values

Path	T Statistic
Online Learning Service Quality -> Customer Retention	6.294
Customer Satisfaction -> Customer Satisfaction -> Customer Retention	52.955

Sourced: Processed Data (2022)

Hypothesis Testing

Hypothesis testing uses path coefficients to see the significance of the structural model built in the study. The indicators used are P Values < 0.05 and T Statistics > 1.96. Table 5 shown the results of the hypothesis testing.

The mediation hypothesis test compares the T Statistical values of the exogenous variables directly to the endogenous variables by the sum of the T Statistical values of the exogenous variables to the mediating variables and then proceeds to the endogenous variables. In this test, researchers can see whether the relationship between exogenous variables and endogenous variables will be better if a mediating variable is used. In addition, researchers also used total indirect effects and specific indirect effects tests.

From the table 6, it can be explained that the T value of the exogenous latent variable statistic of online learning service quality leads to the endogenous variable of customer retention, which is greater by using a mediation intermediary with a value of 52,955. It explains that the consumer (student) retention will be more effective through mediating factor, namely consumer satisfaction. In this study, the intervening variable, customer satisfaction, provides a partial mediating effect. The total indirect effects test for the results of the T statistic gives a value of 2.933 (greater than 1.69), which means that the mediating variables used in the study have an influence. The results were obtained in the specific indirect effect test with a value of 0.241. It states that every time there is an increase of one unit in the online learning service quality, there will be an indirect increase in the customer retention through the customer satisfaction of 24.1%.

DISCUSSION
Online Learning Service Quality (OLSQ) and Customer Satisfaction

The OLSQ referred to in this study is the quality of service provided by the Culinary Tourism-Business Study Program as a provider of educational services through online learning methods. Following the curriculum implemented by the Culinary Tourism-Business Study Program based on practical classes and a project-based learning system, study programs must adapt specifically to the online learning system. Measuring the quality of online learning services in study programs produces important factors for lecturers, materials, and support services for the smooth running of lectures.

In line with the practical class system described in the previous section, virtual classes allow students to quickly consult and get input from lecturers, facilitators, and tutors. In research conducted by Muthuprasad et al. (2021), it was explained that students felt that one of the weaknesses of the online learning system was the difficulty in communicating as in face-to-face classes. In addition to preparing and providing material or communicating in virtual face-to-face activities, the teaching staff at the Culinary Tourism-Business Study Program continue to build relationships outside of lecture hours so that the students can get used to the new online learning system. Several flexible content activities were carried out, such as giving class schedule reminders through the WhatsApp group and providing responses or feedback through various media to students. The overall performance of lecturers and materials is in line with research conducted by Guasch et al. in Junus et al. (2021), which found that teaching staff at the tertiary level must have several abilities to be able to adapt to the online education environment, such as the ability to perform design and planning functions in learning, the social function of building a positive environment in the virtual teaching and learning process, understanding one's function as a facilitator in the field being taught, and the understanding management and technology. The findings of this study are consistent with other studies

(Preikschas et al., 2017; Udo et al., 2010; Wu and Liu, 2007), where they demonstrated that all model determinants had a beneficial impact on student satisfaction. These findings confirm previous research relevant to conventional and online learning approaches (Al-Rahmi et al., 2015; Goh et al., 2017; Sohail and Hasan, 2021; Stodnick and Rogers, 2008). As a result, service quality dimensions have a significant impact on customer satisfaction, indicating their importance in achieving competitiveness, higher value, expanding the service opportunities, and customer satisfaction. This finding aligns with two previous studies by Pham et al. (2019) in the special education sector. In addition, Keržič et al. (2020) stated that the quality of the administrative services and the performance and functions of lecturers in providing valuable feedback will have a significant effect on student satisfaction. Overall, the online learning service quality will affect student satisfaction.

Customer Satisfaction to Customer Retention

Consumer satisfaction, which in this study is described as a student's satisfaction, is defined as an emotional reaction that arises from fulfilling needs and feeling satisfied with the services provided by the study program. Student satisfaction can be seen mainly in the terms of academic services, which are explained as the role of lecturers and the material presented, and academic support services carried out by the study program academic support in the form of providing information and services in general. Yilmaz and Ferman (2017) concluded that consumer satisfaction, company trust, and reputation positively influence consumer retention in the textile industry. Another study in the food and beverage service industry states that there is a significant relationship between the consumer satisfaction and the consumer retention (Sari et al., 2018). In the education sector, research conducted by Eresia-Eke et al. (2020) at private universities states that student satisfaction factors will have a positive and significant effect on student retention. Research conducted by Rama et al. (2021) at a university in Spain concluded that student expectations and satisfaction influence students' decisions to continue further studies at the same university. In addition, expectations, service quality, and perceived value are the three main variables contributing to student satisfaction.

Online Learning Service Quality for Customer Retention

The existing online learning service quality is expected to provide customer satisfaction and good retention rates. Student retention in this study is defined as the ability of educational institutions (Culinary Tourism-Business Study Program) to retain students from the registration period to graduation. It is a big challenge for the study programs, especially during unexpected disruptions like the COVID-19 pandemic. The study programs must adapt quickly to changing the learning systems that require many hours of practice and direct communication when delivering the material. This phenomenon is illustrated through the relationships formed by fellow students through projects carried out together in large groups or discussions in small groups. The long period of working on assignments in groups provides opportunities for students to be able to communicate, get to know each other, and produce teamwork. It is primarily related to project-based learning systems where there is collaboration and relationships between students and lecturers, which may sometimes not work effectively, resulting in miscommunication. It can cause the project's final result not to reach the expected target. Some of the projects students undertake also have quite high points in the final result, sufficient to affect the final grade received. However, through survey results from questionnaires filled out by almost the entire intended population, it can be explained that students are still satisfied with the opportunity to interact with fellow students and lecturers, so in the midst of changes in the learning system, students still decide to stay in lectures. Overall, it can be concluded that service quality performance (OLSQ) will positively affect student retention. The results of this finding are also in line with research conducted the following year in the same industry by Ibojo and Asabi (2015), which found that consumer retention is strongly influenced by the quality of service provided by service providers. In the education industry, research conducted by Liu and Cheng (2018) stated that there is a positive relationship between the quality of a school's service and the retention rate of students from that school.

Online Learning Service Quality on Customer Retention through Customer Satisfaction

From the results of the data processing of the questionnaire and answers returned from active 2019–2020 and 2021 Culinary Tourism–Business Study Program students, it is stated that improving the performance of online services provided by the study program will positively affect the consumer satisfaction and the consumer retention. This research also found in previous research conducted by Pham et al. (2019) that online learning service quality as a whole will affect student satisfaction and have a positive impact on student retention at universities in Vietnam that also carry out online lecture processes. This research can be used as evaluation material to see things that can be done to improve the quality of services provided, both for the ongoing Tourism-Culinary Business Study Program or the development of future study programs in the form of business units, with the concept of online learning. The findings of this study build on and strengthen the existing body of research on the relationship between online learning service quality, customer satisfaction, and customer retention. The results obtained in this study are in line with several previous studies, including Wu and Chen (2017), Zhou (2013), and Alalwan et al. (2017). These studies have highlighted the significant role that customer satisfaction plays as a mediator between service quality and customer retention in various domains, such as the MOOCs, mobile banking, and internet banking.

Wu and Chen (2017) conducted a study on MOOC service quality and found that the customer satisfaction is important in determining customer retention. Similarly, Zhou (2013) examines the quality of mobile banking services and their impact on customer satisfaction and retention. The study revealed that satisfied customers are more likely to continue using mobile banking services. In addition, Alalwan et al. (2017) investigated the relationship between service quality, customer satisfaction, and customer retention in internet banking. Their findings emphasize the role of customer satisfaction in mediating the relationship between service quality and customer retention. This research focuses on the Culinary Study Program during the COVID-19 pandemic. This unique context highlights the importance of online learning service quality and customer satisfaction in sustaining student retention during a challenging and disruptive period. The COVID-19 pandemic is forcing educational institutions worldwide to shift to online learning, making the quality of online services and student satisfaction paramount. By examining the Culinary Studies Program, this study contributes to the existing literature by discussing the impact of online learning service quality and customer satisfaction in certain educational domains that the pandemic has significantly impacted.

IMPLICATIONS

The findings of this research have several implications for practice and future research. Firstly, the research highlights the importance of focusing on online learning service quality in educational programs, particularly during times of disruption such as the Covid-19 pandemic. The results emphasize that providing high-quality online learning experiences can directly influence customer satisfaction and customer retention. Educational institutions, including the Culinary Study Program, should enhance their online learning infrastructure, course content, and support services to ensure students' positive and satisfying learning experiences.

Secondly, the study underscores the mediating role of customer satisfaction in the relationship between online learning service quality and customer retention. It implies that improving customer satisfaction should be a priority for educational institutions aiming to enhance student retention. Institutions should consider implementing monitoring and measuring customer satisfaction strategies, such as regular feedback surveys, focus groups, and continuous improvement initiatives. By addressing the factors contributing to customer satisfaction, institutions can create a positive learning environment promoting student engagement and loyalty.

Additionally, the research contributes to the existing knowledge of online learning and customer retention. While previous studies have examined the relationship between service quality, satisfaction, and retention in various contexts, this research specifically focuses on the Culinary Study Program during the Covid-19 pandemic. This unique context provides valuable insights into the challenges a specialized educational program faces and offers guidance for similar programs in the

future. Future research can build upon these findings by exploring additional factors that may influence customer satisfaction and retention, such as the effectiveness of online teaching methods, the impact of technological tools and platforms, and the role of instructor-student interaction.

Overall, the implications of this research suggest that educational institutions should prioritize delivering high-quality online learning services to ensure customer satisfaction and retention. By understanding the factors contributing to customer satisfaction and its mediating role in the relationship between service quality and retention, institutions can make informed decisions and implement strategies to enhance the online learning experience and promote the long-term student engagement.

RECOMMENDATIONS

Longitudinal Research. Conduct longitudinal studies to examine the relationships between online learning service quality, customer satisfaction, and customer retention over an extended period. It would provide insights into the long-term effects and stability of these relationships, considering factors such as changes in service quality, evolving student needs, and the impact of external factors beyond the Covid-19 pandemic.

Comparative Studies. Conduct comparative studies across different educational programs and institutions to assess the generalizability of the findings. By exploring diverse contexts, such as different disciplines or types of the educational institutions, researchers can examine how the relationships between online learning service quality, customer satisfaction, and the customer retention vary and identify any specific factors that may be influential in specific contexts.

Mixed-Methods Research. Employ mixed-methods research designs combining quantitative and the qualitative approaches to comprehensively understand the factors influencing customer satisfaction and retention. Qualitative research methods, such as interviews or focus groups, can provide valuable insights into students' subjective experiences and perceptions, complementing the quantitative data and enhancing the depth of understanding.

Intervention Studies. Conduct intervention studies that implement targeted strategies or interventions to improve online learning service quality and assess their impact on customer satisfaction and retention. By testing the effectiveness of specific interventions, such as implementing the new technological tools or instructional approaches, researchers can identify best practices and provide practical recommendations for enhancing online learning experiences.

Cross-Cultural Studies. Explore the cross-cultural aspects of online learning service quality, customer satisfaction, and customer retention. The compare different cultural contexts to identify factors influencing student satisfaction and retention and examine how the relationships between these variables may vary across cultures. This research can contribute to understanding the cultural nuances and adapting online learning services to meet student's diverse needs and expectations from different cultural backgrounds.

Technology Integration. Investigate the role of emerging technologies, such as artificial intelligence, virtual reality, or gamification, in enhancing online learning service quality and its impact on customer satisfaction and retention. Explore how these technologies can be effectively integrated into the online learning platforms to improve engagement, personalization, and overall learning experiences.

By pursuing these research recommendations, scholars can further advance the knowledge base in online learning, customer satisfaction, and customer retention. The findings from such studies can inform the development of effective strategies and interventions to enhance online learning experiences, improve the student satisfaction, and promote long-term engagement and retention in educational programs.

Despite its contributions, this research has certain limitations that should be acknowledged. Firstly, the study focuses specifically on the Culinary Study Program during the Covid-19 pandemic, which limits the generalizability of the findings to other educational programs or non-pandemic situations. The unique circumstances of the pandemic, including rapid transitions to the online learning and potential disruptions to the traditional learning environment, may have influenced the results. Therefore, caution should be exercised when applying the findings to different contexts or considering long-term implications beyond the pande-

mic period.

Secondly, the research relies on self-reported student data, which may introduce response biases and limitations associated with the subjective perceptions. While the efforts were made to ensure anonymity and encourage honest responses, social desirability bias or other factors may have influenced participants' feedback. Future studies could consider incorporating objective measures or alternative data sources to validate and complement the self-reported findings.

Another limitation relates to the scope of variables examined in this research. While the study focuses on online learning service quality, customer satisfaction, and customer retention, other relevant factors could impact the relationship. Future research could consider exploring additional variables such as student engagement, perceived value, or demographic factors to gain a more comprehensive understanding of the dynamics influencing customer retention in the context of online learning.

Additionally, the research design utilized cross-sectional data, which captures a snapshot of the relationships at a specific point in time. Longitudinal studies or experimental designs could provide deeper insights into the causal relationships between online learning service quality, customer satisfaction, and customer retention. It would allow for a more robust understanding of the dynamics over time and help establish a stronger basis for causal inferences.

Finally, as with any research, there may be potential limitations related to sample characteristics, sample size, or data collection methods. The sample used in this study may not fully represent the entire population of the Culinary Study Program, and the findings should be interpreted within the context of the specific sample characteristics. Future research could consider larger and more diverse samples to enhance the generalizability of the findings. Acknowledging these limitations provides opportunities for future research to address these gaps and build upon the existing knowledge in the online learning, customer satisfaction, and retention.

CONCLUSIONS

In conclusion, the quality of online learning service positively impacts the customer satisfaction and retention. Generally speaking, indicators in online learning service quality, such as lecturers, course materials, and academic support services, as well as the networks made during the learning process, significantly impact student satisfaction and retention decisions. This study also concludes that, according to the analysis model developed, the quality of the online learning service has the most significant impact on customer satisfaction.

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