

The impact of service quality on student retention: The mediating roles of student satisfaction and switching barriers in private universities

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ABSTRACT

This research investigated the influence of university service quality, student satisfaction, and switching barriers on student retention within private higher educational institutions situated in Ho Chi Minh City, Vietnam. A total of 410 valid questionnaires were collected for analysis, with hypothesis testing conducted using partial least squares structural equation modeling (PLS-SEM). The findings indicate a positive relationship between service quality within Vietnamese higher education institutions and student satisfaction. Additionally, student satisfaction has a positive association with student retention and switching barriers. Furthermore, switching barriers exhibit a positive relationship with student retention. Mediation analyses revealed that student satisfaction mediates the link between service quality and student retention, while switching barriers mediate the relationship between student satisfaction and retention. These findings contribute to the extant literature by elucidating the dynamics of service quality, student satisfaction, switching barriers, and student retention within higher educational contexts, particularly in the realm of private universities. Notably, this study establishes empirical correlations among service quality, student satisfaction, and student retention. Noteworthy outcomes include revealing the positive impact of service quality on switching barriers and identifying the robust moderating effect of switching barriers on the relationship between student satisfaction and student retention. From a managerial perspective, the constructs and insights derived from this study offer valuable guidance to the management teams of private universities, facilitating a deeper understanding of the pivotal role played by service quality in influencing student satisfaction and retention. Consequently, these insights can inform the strategic direction of private educational institutions in Vietnam.

Key words: Service quality, Student satisfaction, Student retention, Switching barriers, Private higher educational institutions

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INTRODUCTION

The significant growth of the national economy demands a greater investment in workforce expertise¹. Economic growth creates more significant requirements for a highly educated workplace, particularly in larger metropolitan areas². Private universities in Vietnam have received greater recognition and attention from the Vietnamese Ministry of Education due to their growing duties to offer a practical education curriculum and prospective workforce for the nation³.

Due to societal demand, numerous private universities have been quickly established to adapt and suit business purposes⁴. With the growth of private universities, they need help with multiple challenges due to the potential but competitive market.^{5,6} The highly competitive surroundings are also compelling higher educational institutions; moreover, they must create their financial resources⁷. Universities are encounter-

ing massiveness and pressure to create value and benefit from their actions. Furthermore, it has been propelled to further commercial competitiveness by economic pressures imposed by the growth of worldwide education⁸. Hence, all private universities should explore unique approaches to attract and maintain learners⁹. Private universities' contributions have become vital in ensuring the development and achievement of students in service¹⁰. Although many students enrol in colleges and universities, private university retention and graduation rates remain low¹¹. The large number of students seeking university and the relatively inadequate retention rates highlighted the significance of providing outstanding and appropriate service quality to foster a sense of satisfactory academic fulfillment and boost retention¹². Student retention is a critical organisational issue with significant worldwide consequences. Students who drop out of university lack the chance to enhance their

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ability to think critically, have less income in their future jobs, and frequently leave university with loans to repay; universities with retention issues suffer a significant decrease in revenue, and for countries, higher education systems that may boost advancement in society and provide the were experts intellectual and skills required in the twenty-first century are undermined by high levels of dropout¹³. The vast range of places where retention studies have been conducted in recent years reflects the significance of retention in educational institutions¹⁴. Student retention has long been a source of concern for higher education institutions, attracting the attention of lecturers, policymakers, and scholars¹⁵.

According to the findings of many studies, service quality attributes are crucial at private educational institutions for building positive interactions with students and enhancing the proportion of student retention¹⁶⁻¹⁸. Nonetheless, most private universities in Vietnam should have the understanding and drive for satisfaction and retention. On the other hand, students' satisfaction and learning success are critical in developing excellent employees and managers, providing substantial benefits to the growth of a nation's economy and society¹⁹⁻²¹.

In the context of a competitive educational market, student retention is seen as a critical statistic for determining how well an educational institution satisfies the demands of its students²². Furthermore, private universities should put tremendous effort into sustaining student retention rates²³. In addition, previous research has shown that service quality, satisfaction among students, and switching barriers all impact student retention²³⁻²⁵ and that switching barriers affect student retention²⁵. Service quality also influences students' perceptions positively²⁴, and student satisfaction substantially influences student retention²³. However, many scholars have studied service quality and satisfaction, and various outcomes have been found depending on the specific point of time and the characteristics of the respondents. Therefore, studies in this field should be conducted in various contexts to expand the current knowledge on this phenomenon. Future studies should collect samples from diverse students²⁶. Additionally, mediating factors, such as student satisfaction and switching barriers, contribute to the relationship between service quality and students' behavioral intentions^{27,28}.

Since the first appearance of many kinds of higher educational sectors, private universities in Vietnam have undergone substantial change and significantly contributed to the nation's general growth²⁹. Due to

the increased choices for undergraduate study available to students today, the higher educational sector is becoming more competitive³⁰. Service quality and student satisfaction have improved significantly due to the impacts of higher education quality accreditation³¹. This study investigated these elements in the context of Vietnamese private universities after the COVID-19 pandemic to examine whether there were any changes before or after the pandemic.

The first study objective is to examine the impact of the determinants of service quality (including reliability, responsiveness, empathy, assurance and tangibles) on student satisfaction and switching barriers. The second objective is to examine the impact of student satisfaction on student retention and switching barriers. Next, the study will examine the impact of switching barriers on student retention. The fourth purpose is to examine the mediating impact of student satisfaction on the relationship between the determinants of service quality and student retention, and the last objective is to examine the mediating impact of switching barrier factors on the relationship between student satisfaction and student retention. The study will be conducted in the context of private universities in Ho Chi Minh City.

This study has made significant contributions to service quality in universities, student satisfaction, switching barriers, and student retention, as well as to the understanding of the relationships among these elements. Policymakers at private educational institutions could benefit enormously from the outcomes by using them to enhance current approaches and principles, create strategies to attract potential new students and keep current ones by delivering them high-quality services. In the Vietnamese context, there are more than 242 higher educational institutions, while there are 176 public universities and 66 private universities²¹. This has created a competitive educational industry, and many large investors are pouring capital into this industry. Understanding which factors affect student retention helps universities ensure that their operations are successful by keeping the retention rate of students high and enhancing institutional quality.

This paper is structured as follows: The introduction presents the purposes and goals of the study. A theoretical review of the previous literature was conducted to create a basis for this study context, and a model of this study and hypotheses were established. The methodology section focused on the research design, data collection methods and measurement scales. The results section analyzes the collected data and reflects the study's outcomes. The chapter also provides the

literature research findings after examining the proposed hypotheses. The discussion section describes the outcomes of the study and provides some implications. Finally, the conclusion section describes the limitations and recommendations of the study.

LITERATURE REVIEW

Service quality. Service quality is determined by contrasting client expectations with perceptions of how well goods or services work³². The overall excellence of the services is assessed by evaluating the discrepancy between client expectations and views of service outcomes³³. “Perceived service quality” describes how consumers evaluate a product’s or service’s overall value by contrasting what they expect from it with what they receive³⁴. In higher education, the discrepancy between a student’s expectations and their views of delivery is called service quality³⁵. The learner’s perspective is critical for evaluating the quality of service in higher education^{36,37}. Students, the government, and professional organisations have a unique sense of service quality according to their respective needs³⁸. Student reviews of service quality provided beneficial data for a university’s progress³⁹. Service quality also improves the image of a university⁴⁰. Therefore, assessing student responses regarding service quality is crucial⁴¹. Five dimensions can be applied to evaluate service quality in higher educational institutions: tangibles, responsiveness, reliability, empathy and assurance⁴².

Tangibles are considered appropriate physical facilities, equipment and devices and sufficient rooms for studying and researching. Responsiveness is how easily and quickly students may contact the individuals they need, such as lecturers and staff. Reliability in service quality may be understood by developing specific objectives, standards, policies, and regulations that are implemented equitably and firmly to enforce compliance with the course’s expected results⁴³. The ability to instil confidence and belief in students through the services offered is an assurance element⁴². The degree to which the scores of the students were rated and how courteously they dealt with and solved the students’ concerns contributed to the knowledge of the Assurance factor⁴⁴.

The previous three decades have seen a true evolution of the service quality paradigm, especially in the context of higher education. Providing excellent service quality is one of an organization’s most essential requirements since it is not only a competitive advantage and corporate offering but also an essential survival strategy and driver of corporate profitability⁴⁵⁻⁴⁷. Service quality in the higher education sector is vital to an institution’s success⁴⁸. As a result,

providing quality service has become a crucial priority for most higher education institutions to differentiate themselves from similar competitors⁴⁹.

Student satisfaction. Student satisfaction refers to an intellectual perspective and sense of emotion from a student’s general assessment of the educational service they received⁵⁰. Students’ satisfaction with the university is understood as their intellectual or emotional reaction to a specific or consistent set of services the institution provides⁵¹. Satisfaction comprises aspects concerning students’ perceptions and experiences at university⁵². Student satisfaction is a psychological response to a service experience and the situation of mind of a person who has received a result that meets his or her requirements and desires^{53,54}.

The significance of student satisfaction in higher educational institutions has been proven recently⁵⁵. When current students are satisfied with their universities, they are more likely to be introduced to others, and in contrast, the universities’ reputations will be destroyed by unsatisfied students⁵⁶.

Switching barriers. Switching barriers include anything that causes it to be more complicated or costly for clients to move providers, such as implementing switching fees⁵⁷. The breakdown of personal connections with suppliers of services is a barrier to switching⁵⁸. In higher education, switching barriers are defined as any obstacles students encounter to transfer from their current university, including switching costs, attraction to alternatives, and emotional obstacles⁵⁹. Investigating switching barriers can effectively prevent customers’ switching intentions or increase customers’ retention, which is essential for any organization⁶⁰.

Student retention. The retention of customers is the continuity of a customer’s commercial connection to a business⁶¹. In the context of the educational sector, student retention can be defined as completing the academic curriculum⁶². The retention of students can also be defined as the percentage of enrolling students who leave or continue their studies at an institution⁶³. Student retention is the ongoing enrollment process for two or more quarters⁶⁴. With the rise of foreign universities in Vietnam and the increasing popularity of studying abroad, the withdrawal of students has expanded. In other words, the retention rate of students has decreased^{65,66}.

Service quality positively impacts student satisfaction in Vietnamese higher educational institutions. Several studies have shown that service quality directly influences customer satisfaction⁶⁷. The most significant indicator of consumer satisfaction is service quality^{68,69}. Service quality significantly impacts

customer satisfaction⁷⁰. Students would not switch to their current university if they were satisfied with the quality service of their university⁷¹. Student satisfaction and curriculum image improved as a result of their service quality evaluations⁷². The impacts of university quality of service on satisfaction among students imply that the institution's service, product, and atmosphere improve satisfaction⁷³.

Student satisfaction positively impacts student retention in Vietnamese higher educational institutions.

Customer satisfaction is the organization's most popular and essential tool for assessing customer perception⁷⁴. Customers who are satisfied with a service have positive behavior and intentions to use that service repeatedly^{75,76}. Excellent customer satisfaction might increase customer retention⁷⁷. Customer satisfaction is critical for customer retention⁷⁸. The significance of service quality variables on the retention of customers^{79,80}.

Higher education students are more likely to stay there and achieve their educational pursuits when their universities fulfill their requirements⁸¹. The association between satisfaction and retention may be highest when the student perceives the college or university to give what they require to accomplish their educational objectives and expectations⁸². Various studies have demonstrated that student satisfaction impacts students' decision to stay and finish their educational program⁸³⁻⁸⁵. Student satisfaction accounts for 32.6% of future participation differences⁸⁶.

Student satisfaction positively impacts switching barriers in Vietnamese higher educational institutions.

The crucial role of satisfaction in maintaining consumer repurchasing of products and services in their study is determining the factors that sustain the customer retention rate of customers⁸⁷. The connection between obstacles to switching and satisfaction was examined⁸⁸. In the banking sector, consumer satisfaction has a positive impact on preventing customer switching behavior⁸⁹.

Switching barriers are defined as any limits students encounter in transferring from their existing university, including objective situational factors such as switching costs, attraction to alternatives, and psychological barriers²⁶. Satisfied students will have significant switching barriers in the higher education sector. Higher education institutions will provide substantial switching barriers for satisfied students. Nevertheless, despite the minimal switching hurdles, unsatisfied students can decide to remain at their university⁷. Customer satisfaction impacts perceived switching costs⁹⁰.

Switching barriers positively impact student retention in Vietnamese higher educational institutions.

Many studies have investigated the association between switching barriers and customer retention⁹¹⁻⁹³. Switching barriers have a strong positive impact on CR⁹⁴. When students pay a higher tuition fee or take extra classes, they may call other universities to obtain information, which requires additional work and time. In the end, students may go through a period of confusion (psychological costs) and may accept the courses offered by their current institution⁹⁵.

High switching barriers indicate that consumers stick with suppliers⁹⁶⁻⁹⁸. Empirical research has shown that switching costs explain customers' preferences for staying with an existing provider⁹⁹. The researcher also discovered that both primary and secondary switching barriers might have an impact on the retention of customers. Consequently, an organization can retain customers, even if they are unhappy, but it is possible on one condition if switching barriers are significant¹⁰⁰. Switching costs can significantly contribute to customer retention since customers give them more weight when making decisions¹⁰¹.

A relationship exists between service quality and student retention through student satisfaction.

Customer retention and long-term connections are positively impacted by service quality¹⁰². Considering the importance of mediation, customer satisfaction strongly mediates the link between service quality and customer retention¹⁰³. A positive student perception of service quality increases satisfaction with a private university. Consequently, satisfied students will continue attending the institution and spread information about the university²⁶.

There is a relationship between student satisfaction and student retention through switching barriers.

Switching obstacles are more influenced by how consumers perceive competing alternatives than their availability on the market⁹¹. Students need to be more competent to switch universities because switching constraints and switching barriers considerably moderate the association between customer satisfaction and retention¹⁰⁴. Switching barriers limit students from changing universities. The more switching barriers there are, the more behavioral retentions there are in their current higher educational institution.

Two elements impact customer retention: customer satisfaction and switching barriers^{105,106}. Customer switching behaviors are narrowed by high customer satisfaction and switching barriers¹⁰⁷. High switching costs impact customer loyalty, and customer retention is one of the components of customer loyalty;

therefore, it can be concluded that switching costs impact customer retention¹⁰¹.

Service quality positively impacts switching barriers in Vietnamese higher educational institutions. When the buying process—associated with responsiveness—is longer than the customer’s expectation, he or she is more likely to move to another supplier¹⁰⁸. Previous research in the Western context has indicated that poor service quality is one of the causes of switching behaviors¹⁰⁹. Service failures may lead customers to switch to another supplier¹¹⁰. High service quality results in customer satisfaction, ultimately leading to consumers staying with the present providers¹¹¹.

METHODOLOGY

The research procedure is divided into two sections. The factors were described first by studying the literature and then by applying them to the research. The theoretical framework was then constructed using these literature reviews. The variables’ connections were examined, and theories were proposed. Following the construction of the framework, the following step was to carefully gather the items for each variable before developing the preliminary questionnaire. The reviewers examined the questionnaire to ensure the content’s legitimacy. A group of students then conducted the pilot research to check the questionnaire’s validity and reliability before it was utilized for official data collection. The questionnaire was accurate and reliable enough to complete the survey. With the study’s objectives, a mass survey was conducted. This survey was conducted online, and participants were encouraged to participate. The data were then entered and analyzed using SPSS, AMOS and SmartPLS. The number of samples, approximately 200 to 300, illustrates the approximate and reliable results¹¹².

A pretest was essential, and questions were amended before the final questionnaire was released¹¹³. The pilot test aimed to assess the reliability and accuracy of the proportional measurements. The questionnaire was distributed to 30 students and experts who could guarantee its accuracy and reliability by providing feedback and suggestions on the questionnaire structure, coherent logic, relevant situations, and understanding capacity. The study included a sample of 450 respondents from five famous private universities in Ho Chi Minh City, including Van Lang University, Hong Bang University, Hoa Sen University, Hutech University, and UEF University. The eligible answers were then gathered, while the invalid answers were discarded due to absent and duplicate data and

unusually irresponsible responses during the analysis. The sampling quota was a selective approach for filtering appropriate applicants for the sample. A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to measure all the items. The questionnaire was divided into two sections. The first included variables: study year, age, gender, university name, family income and hometown. The second section was concerned with the construction evaluation of all essential variables.

With a self-administered, structured survey, the author contacted students at the private universities surrounding Ho Chi Minh City and explained the study’s objectives. Using Google Forms, students were given access to an online survey that followed a standardized, self-administered method. The respondents might begin answering the questions as soon as they receive the survey link. As a result, 410 out of 450 people provided accurate results that could be used in the data analysis.

Online survey data collection requires less time and resources. Respondents might also respond at their convenience rather than at inconvenient moments while answering an online survey. However, the data collection rate of the online approach was lower than that of the offline method since individuals could find the online technique more convenient.

Table 1 shows the measurement scale used in the study. The first construct was service quality, with 46^{114,115}. The second construct was student satisfaction, which was assessed with 7 items¹¹⁶. The third construct was switching barriers. This construct was evaluated with 17 items in 4 categories^{117–119}. The fifth construct was student retention, with 4 items¹²⁰.

RESULTS

Evaluation of the measurement model

Table 2 shows the demographic profile, which was accurate enough to represent the population of the study. Males and females accounted for 42.7% and 51.2%, respectively. The population ranged from 18 years old to more than 21 years old and were studying at university. The students came mainly from the five universities mentioned above.

Except for RS4, all the factors are shown in Table 3 had factor loadings greater than 0.7. These constructs had factor loadings ranging from 0.678 to 0.892, which is an acceptable range¹²¹. As a result, the factors indicated acceptable variance for factors explaining factors. In general, the item’s measurement was deemed reliable.

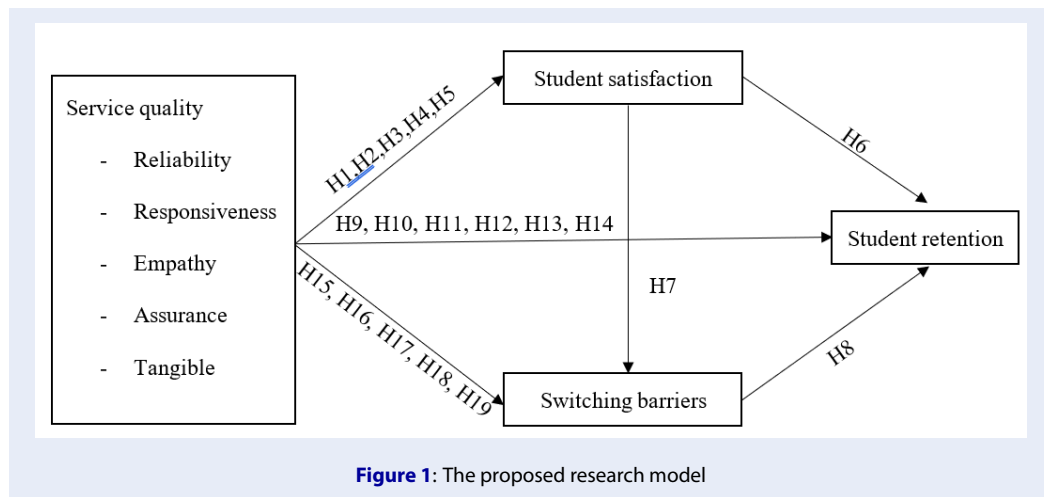


Table 1: Measurement scales

Constructs	Number of items
Service quality (Reliability, Responsiveness, Empathy, Assurance, Tangibles)	46 items ^{114,115} (5 categories)
Student satisfaction	7 items ¹¹⁶
Switching barriers (Move-in cost, Attractiveness of alternatives, Interpersonal relationship, Lose cost)	17 items (4 categories) ¹¹⁷⁻¹¹⁹
Student retention	4 items ¹²⁰

Table 2: Demographic descriptions

		Number	Percentage
Gender	Male	175	42.7
	Female	210	51.2
	Other	25	6.1
Age	18 years old	81	19.8
	19 years old	76	18.5
	20 years old	121	29.5
	21 years old	112	27.3
	Above 21 years old	20	4.9
Year	First-year	99	24.1
	Second year	69	16.8
	Third year	115	28.0
	Fourth-year	115	28.0
	Others	12	2.9
Universities	Hoa Sen	61	14.9
	Hong Bang	56	13.7
	Hutech	110	26.8
	UEF	67	16.3
	Van Lang	105	25.6
	Other	11	2.7
Family Income	Below 10 million VND	27	6.6
	From 10 million to 20 million VND	125	30.5
	From 20 million to 30 million VND	126	30.7
	From 30 million to 40 million VND	76	18.5
	From 40 million to 50 million VND	31	7.6
	Above 50 million VND	25	6.1
Hometown	Binh Duong province	125	30.5
	Municipal cities	73	17.8
	Dong Nai province	55	13.4
	Ho Chi Minh City	127	31.0
	Other	30	7.3

Table 3: Factor loadings of the items

Constructs		Items	Outer loadings
Service quality	Reliability	RL1	0.763
		RL2	0.809
		RL3	0.791
		RL4	0.751
		RL5	0.780
		RL6	0.792
		RL7	0.763
	Responsiveness	RS1	0.763
		RS2	0.709
		RS3	0.732
		RS4	0.687
		RS5	0.756
		RS6	0.743
		RS7	0.713
	Empathy	E1	0.782
		E2	0.777
		E3	0.781
		E4	0.727
		E5	0.766
		E6	0.753
		E7	0.776
	Assurance	A1	0.782
		A2	0.788
		A3	0.758
		A4	0.775
		A5	0.771
		A6	0.734
		A7	0.781
	Tangibles	A8	0.796
		A9	0.740
		T1	0.832
		T2	0.791
T3		0.808	
T4		0.724	
T5		0.809	
T6		0.820	
T7		0.804	
T8		0.816	
T9		0.821	
T10		0.762	
T11		0.851	
T12		0.757	
T13		0.837	
T14		0.719	
T15	0.741		
T16	0.714		
Student satisfaction	SS1	0.850	
	SS2	0.831	
	SS3	0.836	

Continued on next page

Table 3 continued

		SS4	0.796
		SS5	0.892
		SS6	0.828
		SS7	0.743
Switching Barriers	Move-in Cost	M1	0.771
		M2	0.802
		M3	0.767
		M4	0.792
		M5	0.778
	Attractiveness of Alternatives	AA1	0.729
		AA2	0.724
		AA3	0.750
		AA4	0.736
	Interpersonal Relationship	IR1	0.769
		IR2	0.794
		IR3	0.799
		IR4	0.770
	Lose Cost	LC1	0.774
LC2		0.769	
LC3		0.787	
LC4		0.795	
Student Retention	SR1	0.802	
	SR2	0.888	
	SR3	0.776	
	SR4	0.797	

Table 4 reported that the CR of all the constructs was greater than 0.7. All the constructs reflected the high internal consistency and dependability of the study model¹²². This study also determined that a Cronbach's alpha greater than 0.6 was acceptable. In detail, the Cronbach's alpha values in this study were all above 0.7¹²³. The average extracted variance (AVE), used to test construct convergent validity, should be more than 0.5¹²⁴. The mean value was computed by taking the square of each item loading on a build. In this study, the AVE values ranged from 0.532 to 0.683, which indicated convergent validity. This finding also implied that a construct might account for at least 50% of the variance in its elements. Overall, all the constructs were greater than 0.5, supporting convergent validity.

The heterotrait–monotrait ratio is a tool for testing the discriminant validity of a construct. The heterotrait–monotrait method is the means of heterotrait–heteromethod correlations divided by the average of monotrait–heteromethod correlations¹²⁵. The average mean of the heterotrait–hetero method must be used to distinguish between the two constructs. The Heterotrait–Monotrait Ratio should be less than one¹²⁵, whereas other researchers contend that 0.9 is the appropriate cutoff point for assessing discriminant validity¹²⁶.

The Heterotrait–Monotrait ratio for discriminant validity is shown in Table 5. The discriminant validity between the two reflective constructs was less than 0.9, which was acceptable for obtaining discriminant validity. As a result, the Heterotrait–Monotrait discriminant validity was sufficient.

Evaluation of the structural model

Table 6: Structural model fit

	R-square	Q-square
Student retention	0.068	0.059
Student satisfaction	0.420	0.393
Switching barriers	0.375	0.285

R² is “the overall effect size measure for the structure model.” The R² value, also known as the coefficient of determination, was used to analyze how well independent constructions explain the dependent construct. R² values greater than 0.1 reflect the model's quality of fit and forecast model correctness¹²⁵. The greater the R² score is, the better the level of prediction accuracy. As shown in Table 6, the R² of student retention was 0.068%, which was lower than 0.1; student

satisfaction, 0.420%; and switching barriers, 0.375%, above 0.1. This also meant that the model was able to illustrate 6.8%, 42% and 77.5% of the differences in student retention, student satisfaction, and switching barriers, respectively.

The Q² value, in addition to the R² value, is used to evaluate model fit. A Q² value greater than 0 showed that the model predicts this specific construct when given an absolute reflective dependent variable. A Q² score greater than zero indicated that the dependent variables were predictive. The blindfolding technique was utilized with an omission distance of five to obtain the Q² value¹²⁷. Table 6 reveals that the Q square values of student retention (0.059), student satisfaction (0.393), and switching barriers (0.285) were greater than zero, suggesting that the dependent variables (student retention, student satisfaction, and switching barriers) were predictive. As a result, the importance of the model goodness of fit was determined.

Hypothesis 1 (H1) was tested, and the results showed that reliability positively affected student satisfaction ($\beta=0.158, p=0.006$). Hypothesis 2 (H2) was tested, and the results showed that responsiveness positively affected student satisfaction ($\beta=0.206, p=0.001$). Hypothesis 3 (H3) was tested, and the results showed that empathy positively affected student satisfaction ($\beta=0.162, p=0.010$). Hypothesis 4 (H4) was tested, and the results showed that sssurance positively affected student satisfaction ($\beta=0.171, p=0.007$). Hypothesis 5 (H5) was tested, and the results showed that tangibles positively affected student satisfaction ($\beta=0.240, p=0.000$). Hypothesis 6 (H6) examines whether student satisfaction significantly affects student retention. The results demonstrated that student satisfaction significantly affects student retention ($\beta=0.179, p=0.001$). Hypothesis 7 (H7) examines whether student satisfaction affects switching barriers. The results demonstrated that student satisfaction significantly affects switching barriers ($\beta=-0.328, p=0.000$). Hypothesis 8 (H8) examines whether switching barriers affect student retention. The results demonstrated that switching barriers affect student retention ($\beta=0.162, p=0.001$).

Hypothesis 9 (H9) evaluates whether student satisfaction mediates the relationship between reliability and retention. The indirect effect was positive ($\beta=0.028, p=0.019$). Hypothesis 10 (H10) evaluates whether student satisfaction mediates the relationship between responsiveness and retention. The indirect effect was positive ($\beta=0.037, p=0.065$). Hypothesis 11 (H11) evaluates whether student satisfaction mediates the relationship between empathy and student retention. The indirect effect was positive ($\beta=0.029, p=0.039$).

Table 4: Findings of internal consistency

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average Extracted (AVE)	Variance
Threshold	≥ 0.6	≥ 0.7	≥ 0.7	≥ 0.5	
Assurance	0.914	0.916	0.929	0.592	
Empathy	0.883	0.884	0.909	0.587	
Reliability	0.892	0.892	0.915	0.606	
Responsiveness	0.853	0.856	0.888	0.532	
Student retention	0.835	0.863	0.889	0.668	
Student satisfaction	0.922	0.927	0.938	0.683	
Switching barriers	0.957	0.958	0.961	0.595	
Tangibles	0.959	0.961	0.963	0.623	

Table 5: Heterotrait–Monotrait Ratio

	Assurance	Empathy	Reliability	Responsive	Student retention	Student satisfaction	Switching barriers	Tangibles
Assurance								
Empathy	0.460							
Reliability	0.350	0.502						
Responsive	0.460	0.320	0.433					
Student retention	0.114	0.112	0.175	0.539				
Student satisfaction	0.464	0.498	0.508	0.490	0.226			
Switching barriers	0.423	0.377	0.474	0.364	0.208	0.173		
Tangibles	0.254	0.406	0.448	0.263	0.120	0.481	0.398	

Hypothesis 12 (H12) evaluates whether student satisfaction mediates the relationship between assurance and retention. The indirect effect was positive ($\beta=0.031$, $p=0.058$). Hypothesis 13 (H13) evaluates whether student satisfaction mediates the relationship between tangibles and student retention. The indirect effect was positive ($\beta=0.043$, $p=0.008$). Hypothesis 14 (H14) evaluates whether switching barriers mediate the relationship between student satisfaction and student retention. The indirect effect was positive ($\beta=-0.053$, $p=0.007$). Hypothesis 15 (H15) was tested, and the results showed that reliability positively affected switching barriers ($\beta=0.280$, $p=0.000$). Hypothesis 16 (H16) was tested, and the results showed

that responsiveness positively affected switching barriers ($\beta=0.163$, $p=0.002$). Hypothesis 17 (H17) was tested, and the results showed that empathy positively affected switching barriers ($\beta=0.111$, $p=0.044$). Hypothesis 18 (H18) was tested, and the results showed that Assurance positively affected switching barriers ($\beta=0.274$, $p=0.000$). Hypothesis 19 (H19) was tested, and the results showed that tangibles positively affected switching barriers ($\beta=0.271$, $p=0.000$).

DISCUSSION

Service quality positively impacts student satisfaction in Vietnamese higher educational institutions.

The results indicate the essential service quality for

Table 7: Path coefficients and hypothesis testing (direct effect)

Relationships	Hypotheses	Path Coefficient- β	t Value	p Value	Decision
Reliability → Student satisfaction	H1	0.158	2.768	0.006	Supported
Responsiveness → Student satisfaction	H2	0.206	3.356	0.001	Supported
Empathy → Student satisfaction	H3	0.162	2.588	0.010	Supported
Assurance → Student satisfaction	H4	0.171	2.685	0.007	Supported
Tangibles → Student satisfaction	H5	0.240	4.480	0.000	Supported
Student satisfaction → Student retention	H6	0.179	3.215	0.001	Supported
Student satisfaction → Switching barriers	H7	-0.328	5.678	0.000	Supported
Switching barriers → Student retention	H8	0.162	3.210	0.001	Supported

Table 8: Path coefficients and hypothesis testing (indirect effect)

Relationships	Hypotheses	Path Coefficient- β	t Value	p Value	Decision
Reliability → Student satisfaction → Student retention	H9	0.028	2.354	0.019	Supported
Responsiveness → Student satisfaction → Student retention	H10	0.037	1.850	0.065	Rejected
Empathy → Student satisfaction → Student retention	H11	0.029	2.072	0.039	Supported
Assurance → Student satisfaction → Student retention	H12	0.031	1.898	0.058	Supported
Tangibles → Student satisfaction → Student retention	H13	0.043	2.679	0.008	Supported
Student satisfaction → Switching barriers → Student retention	H14	-0.053	2.717	0.007	Supported
Reliability → Switching barriers	H15	0.280	4.940	0.000	Supported
Responsiveness → Switching barriers	H16	0.163	3.126	0.002	Supported
Empathy → Switching barriers	H17	0.111	2.018	0.044	Supported
Assurance → Switching barriers	H18	0.274	4.825	0.000	Supported
Tangibles → Switching barriers	H19	0.271	5.289	0.000	Supported

satisfying university students. This outcome is consistent with previous research, in which service quality was the most significant predictor of customer satisfaction^{128,129}. A significant link between student-perceived service quality and satisfaction in higher education was found¹³⁰. Consequently, service quality is the most significant predictor of student satisfaction in educational institutions. There are recommendations that educational institutions prioritize learning system quality and service quality attributes such as

the design of courses, student-instructor connections, assistance and administrative support. Each trait has a variable impact on student satisfaction¹³¹.

Student satisfaction positively impacts student retention in Vietnamese higher educational institutions.

The outcome of hypothesis testing revealed a significant effect of student satisfaction on student retention. This finding is in line with previous studies conducted by other researchers¹³²⁻¹³⁵. Their studies demonstrated that consumer satisfaction benefited the orga-

nization in developing a successful and long-term relationship with its customers. Student satisfaction resulted in excellent word of mouth, and the educational institution could retain students for the following academic years. Moreover, in an educational institution, student satisfaction significantly impacts student retention and loyalty¹³⁶⁻¹³⁹. As a result, satisfied students are more likely to express excellent behavioral retention.

Student satisfaction positively impacts switching barriers in Vietnamese higher educational institutions. According to the findings, student satisfaction considerably impacts university switching barriers. The study suggested that while a student's reported satisfaction is significant, the possibility of a student switching to another university is minimal. Customer satisfaction has a favorable impact on the level of switching intention¹⁴⁰.

Service quality positively impacts switching barriers in Vietnamese higher educational institutions. This study revealed the positive effect of service quality on switching barriers. This result is in line with previous studies^{141,142}. When the institutions offer high-quality service to their students, they stay with their university and do not switch to another one. Service quality in private universities plays a vital role in shaping switching barriers.

Switching barriers positively impact student retention in Vietnamese higher educational institutions. This study additionally indicates a unique outcome: switching barriers are strongly linked to student retention in higher education. This finding is in line with a previous study¹⁴³. Additionally, in the banking sector, switching barriers are a crucial predictor of loyalty¹⁴⁴.

There is a relationship between student satisfaction and student retention through switching barriers. As the data in this study revealed, the switching barrier fully mediated the positive relationship between student satisfaction and student retention. This outcome aligns with previous research^{145,146} showing that customers are unlikely to switch to other service providers due to high switching barriers.

A relationship exists between service quality and student retention through student satisfaction. According to the statistical analysis, student satisfaction completely mediates the relationship between service quality and student retention at private universities. Excellent service provided by higher educational institutions can meet student expectations and hence lead to student satisfaction^{143,147,148}. When students are satisfied with their university, their loyalty may increase. As a result, they decide to continue their studies at their current university.

Theoretical implications

The outcomes of this study have added to our understanding of service quality, student satisfaction, switching barriers, and student retention in higher educational contexts, especially in private universities. Other studies have focused on these dimensions^{51,72,130}. The empirical correlations between service quality, student satisfaction, and student retention were also established in this study.

This study has made a significant contribution to the development of empirical research on the issue. This study added to the evidence that student satisfaction completely mediated the connection between student service quality and student retention, which is consistent with previous research^{102,103,143,149,150}.

One of the significant outcomes was that service quality had a positive impact on switching barriers, which was the same as the findings of previous studies¹⁰⁸⁻¹¹¹. Higher service quality created more substantial barriers, discouraging students from switching to other universities. The quality of service could significantly influence the decisions of students to remain with their current provider rather than explore alternatives.

Furthermore, the findings of this study revealed that switching barriers had a solid moderating influence on the correlation between student satisfaction and student retention. When evaluating the indications of switching barriers inside a university, students were assumed to be cautious and deliberate. Other studies also reported similar results^{101,105-107}.

Managerial implications

In terms of management, the constructs and elements gathered in this study helped create a better understanding of the role of service quality for the management team of a private university, which has had a significant impact on student satisfaction and student retention and will guide the future strategy of private educational institutions in Vietnam.

The basic principle was that university leaders must implement higher service and education quality approaches to boost education quality, student satisfaction, and retention rate. First, service quality is critical in determining student satisfaction. As a result, satisfied students will impact their intentions to stay with the university, and they will spread positive words about their institution. This research can assist a private university's board of council in building an excellent academic structure and serve as a reference point for university ranking standards regarding quality service features. The assurance of high-quality service by

private institutions would boost Vietnam's attempts to become an ideal international education destination. Therefore, transformation activities in higher education services are required to increase the performance standards and level of competition among private universities. This might be done by thoroughly grasping undergraduate students' needs and expectations. In conclusion, this research provides significant evidence that service quality is a major predictor of satisfaction and retention, implying that service quality is an essential concept in the context of private educational institutions in Vietnam.

CONCLUSIONS

Limitations and future recommendations

There were various limitations to this study. First, the data were gathered solely from private universities in Ho Chi Minh City. As a result, outcomes might not be created on a nationwide scale. To provide adequate findings, similar research might be performed in private universities across the country. Second, the data were solely gathered from private universities.

Consequently, the findings of this study were helpful exclusively for private universities. A similar study might be undertaken for public universities, providing different results than for private universities. Furthermore, it was suggested that samples be collected from a diverse range of students, including postgraduate students and international students at private universities, as they may have various expectations and requirements compared to undergraduate students. Future studies may also fill in the knowledge gaps about how online education trends and digital learning platforms impact student satisfaction and retention at private universities, particularly in the context of the COVID-19 pandemic's effects on higher education.

Online survey data collection requires less time and resources. Respondents might also respond at their convenience rather than at inconvenient moments while answering an online survey. However, the data collection rate of the online approach was lower than that of the offline method since individuals could find the online technique more convenient. Future research can combine two ways of collecting data for more accurate results.

This study demonstrated a substantial causal relationship between service quality, student satisfaction, switching barriers, and student retention in Ho Chi Minh, a private Vietnamese university. The findings demonstrated that service quality impacted student satisfaction, switching barriers and retention. The board of the university council must focus more on

service quality and student satisfaction. These approaches are required to attract potential new students and retain existing students to boost a university's profit and sustainability. A comprehensive understanding of undergraduate students' needs and wants may improve the effectiveness level and competitive advantage of private universities in Vietnam. Measuring the impact of service quality on student retention and identifying the mediating roles of student satisfaction and switching barriers in private universities were important study goals. The analysis revealed strong associations between switching barriers, student retention, service quality, and student satisfaction. Universities should take on a more significant role by satisfying students with high-quality services. Additionally, it has determined which aspects of the service should be highlighted in marketing campaigns intended to draw in and keep current students.

AUTHORS' CONTRIBUTIONS

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COMPETING INTERESTS

The authors hereby state that the paper's publication does not involve any conflicts of interest.

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