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Factors Influencing Student Satisfaction and Loyalty: A SEM-Based Study in Phnom Penh Universities

Chanbolin Heng^{1*}, Sophearith Yeun², Ratha Sor³

¹hengchanbolin@gmail.com, ²rith.info@gmail.com, ³rathasor.csuk@gmail.com

¹Royal University of Law and Economics, ²Western University Cambodia, ³National University of CheaSim Kamchaymear

*Corresponding Author: Chanbolin Heng

Email: hengchanbolin@gmail.com

ABSTRACT

Student satisfaction and loyalty are important indicators of institutional success in higher education. This study empirically validated a conceptual model of student satisfaction and loyalty in Phnom Penh universities, Cambodia. Building upon the structured literature review, the study identified five key determinants of student satisfaction, namely teaching quality, college administration, campus life and social integration, infrastructure facilities, and institution reputation. A quantitative research design was employed using online survey data collected from 450 of year 2 to year 4 students in two private universities in Phnom Penh. Structural Equation Modeling (SEM) using SPSS Amos 23 was applied to test the hypothesized relationships between constructs. The measurement model was assessed using reliability and validity tests, while the structural model was evaluated through path coefficients, t-statistics, and R^2 analysis. The results indicated that teaching quality was the most significant factor affecting student satisfaction, followed by institution reputation, infrastructure facilities, and campus life and social integration, while college administration had a positive but an insignificant impact on student satisfaction. Moreover, student loyalty was significantly influenced by student satisfaction. This study contributes to theoretical framework regarding to student satisfaction and loyalty under the context of tertiary education in Cambodia. In practice, the findings can help university managers develop strategies for attracting and retaining students in the increasingly competitive higher education environment.

Keywords: *Expectation-Confirmation Theory, Stimulus-Organism-Response Theory, Service Quality, Student Satisfaction, Student Loyalty*

INTRODUCTION

Higher education is acknowledged as a vital driver for human capital development, innovation, and national economic competitiveness in both developed and developing nations. In Cambodia, enrollment continues to rise as the nation increases its higher education sector, which has experienced substantial expansion over recent decades (Heng, 2024). The increase in student enrollment is ascribed to the expanding availability of university education and enhanced accessibility for high school graduates in Cambodia (Sok & Bunry, 2024). Phnom Penh, the political and economic hub of Cambodia, contains a significant number of public and private universities offering diverse academic programs to both local and international students (MoEYS., 2023). The swift proliferation of higher education institutions, increased from 124 to 189 in 2018-2023 (MoEYS, 2024), has heightened rivalry among universities, necessitating enhancements in educational quality, institutional reputation, and student services to attract and retain students (Mulyono et al., 2020; Sok & Bunry, 2023).

Student satisfaction has emerged as a critical metric for assessing the efficacy and quality of higher education institutions. Prior research has shown that contented students are more inclined to attain superior academic achievement, persist in their studies, and cultivate favorable attitudes of their institutions (Cao, 2023). Moreover, student loyalty has garnered significant focus in higher education research, as loyal students are inclined to endorse their universities, engage in alumni activities, and sustain enduring relationships with institutions (Amegbe et al., 2019). Likewise, Mulyono et al. (2020) observed that student behaviors, such as sharing positive experiences, providing recommendations, and making referrals, are influenced by their overall satisfaction and brand perception of the university. In similar finding by Hok et al. (2021), student satisfaction has a major impact on the intention of students to pursue higher education in Cambodia.

Notwithstanding the swift institutional growth, numerous challenges hinder the quality of higher education in Cambodia (Ban & Heng, 2023). Numerous institutions face challenges in delivering teaching methodologies, fostering a conducive academic atmosphere, maintaining contemporary infrastructure, and supplying learning resources that meet student needs and expectations (Long et al., 2021). Heng and Prum (2025) further found that inadequate service provided by management team, administrative personnel and educational staff hindering student enrollment in selected university. Moreover, technological progress, globalization, and shifts in student learning choices have intensified the need on universities to provide superior educational experiences and student support services (UNESCO, 2021). Inadequate fulfillment of student expectations may adversely affect student satisfaction, student retention, and university competitiveness (Kieng et al., 2021).

While numerous studies have investigated student satisfaction and loyalty through structural equation modeling (SEM) in both developed and emerging

countries, a few empirical researches within the higher education in Cambodia, particularly in Phnom Penh, where competition among institutions is notably fierce (Hok et al., 2021; Kieng et al., 2021; Long et al., 2021). In alignment with identified research gaps and the importance of student satisfaction and loyalty, this study was adapted from the structured literature review by Heng et al. (2026) and it aims to assess the influence of teaching quality, campus life and social integration, infrastructure facilities, institution reputation, and college administration on student satisfaction, as well as the effect of student satisfaction on loyalty among university students in Phnom Penh, utilizing Structural Equation Modeling (SEM).

LITERATURE REVIEW

The Stimulus-Organism-Response Theory

The Stimulus-Organism-Response (SOR) is utilized in environmental psychology and has been integrated into several academic disciplines, including education. According to a research by Laato et al. (2020), marketing scholars utilize the SOR theory to understand how environmental factors function as stimuli that influence customers' cognitive and affective processes as organisms, leading to behavioral reaction as response. Leung and Wen (2021) asserted that the SOR elucidates the relationships between environmental stimuli, human responses, and cognitive and emotional states. Wong et al. (2023) elucidated the conceptual basis of student loyalty in higher education within an educational context by employing the SOR model. Furthermore, Pan et al. (2024) investigated the impact of online learning interactions on learners' views of utility and convenience of use, therefore influencing their learning results.

The Expectation Confirmation Theory

The Expectation-Confirmation Theory (ECT) was originally created by Richard L. Oliver (Oliver, 1980). ECT in higher education helps to explain how students assess their university experience depending on their initial expectations and the actual performance of the university (Chandra & Fitriyanto, 2024). Students join universities with expectations about the quality of teaching, campus facilities, administrative assistance, institutional reputation, learning tools and social environments. Students assess their real outcomes against their initial aspirations following these services, and the extent to which these expectations are fulfilled plays a crucial role in their satisfaction and loyalty to the institution (Iqbal et al., 2026). Recently, the ECT has been used increasingly in higher education studies to explain the relationships among institutional factors, student satisfaction and loyalty due to students continuously evaluate the quality of education and the institutional performance of their universities (Santini et al., 2024).

Service Quality in Tertiary Education

Service quality presented by Parasuraman et al. (1985) has encouraged other researchers to examine this concept in many domains of service. It consists of five dimensions; consisting of tangible, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988). Abdullah (2006) established the higher education performance (HEdPERF) idea as a critique of SERVQUAL in measuring higher education service quality. The HEdPERF concept comprises five aspects, non-academic, academic, reputation, access and planning. Qaiser Danish et al. (2018) defined that service quality is a function of comparison that relates the level of services delivered with the expectations of the customer. Based on Mulyono et al. (2020) demonstrated that the quality of services given directly affects student satisfaction. Moreover, Long et al. (2021) revealed that the quality of service, including transformative quality and reputation, affected student satisfaction.

Student Satisfaction

Student satisfaction can be described as the degree to which student expectations are met by the actual experience they get regarding academic experiences and campus services (Kotler & Fox, 2022). Satisfaction is a key indicator of the quality of higher education institutions, since it is closely linked to student retention, loyalty, and promotional activities such as word-of-mouth referrals. Student satisfaction is highly dependent on the quality of education and the general academic experience. This encompasses the relevance and effectiveness of the curriculum, the expertise and accessibility of the professors, the availability of resources and learning materials, and the chances for intellectual growth and development (To & Lung, 2020). The overall learning environments such as classroom atmosphere, student engagement and participation, use of supportive teaching methodologies, and the level of interaction and collaboration among peers have a strong impact on student satisfaction (Bengui & Pibulcharoensit, 2022).

Student Loyalty

Snijders et al. (2020) described that loyalty can be expressed in numerous ways, for example by positive recommendations by students about their university or participation in extracurricular activities. Likewise, faithful students are likely to suggest the same higher education institutions to their family members, friends, and lovers (Wong et al., 2023). Similarly, Mulyono et al. (2020) stated that student behaviors such as sharing positive experiences, giving recommendations and referrals are affected by their overall satisfaction and the university's brand image. Student loyalty is important in the higher education sector, since it can lead to higher loyalty and market share advantage (Latif et al., 2021). Higher education institutions are predicated on the student loyalty as a stable and predictable source of revenue (Çavusoglu et al., 2020). The most significant factors contributing to student loyalty are student satisfaction (Cao, 2023; Zaini et al., 2020; Zhai, 2022).

RESEARCH METHODOLOGY

The conceptual framework of this study was derived from a prior structured literature review conducted by Heng et al. (2026). It was developed by the integration of the SOR, ECT and service quality theories to examine the links among factors, student satisfaction and loyalty in Phnom Penh universities. Teaching quality, campus life and social integration, infrastructure facilities, institution reputation, and college administration play as service quality dimensions influence student internal evaluations. Based on SOR, these factors function as stimuli affecting student satisfaction as the organism, which subsequently leads to student loyalty as the response. ECT further supports the framework by explaining that student satisfaction is formed when student actual educational experiences meet or exceed their expectations regarding university services and learning environments.

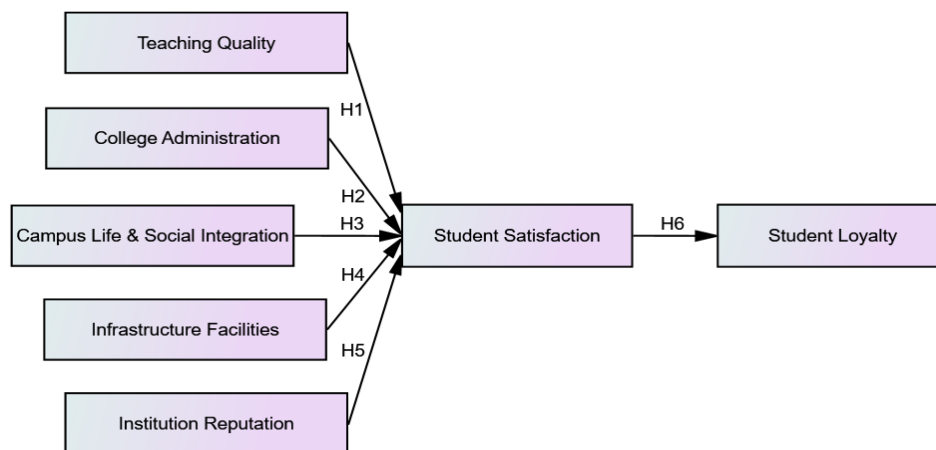


Figure 1 Comceptual Framework
Source: Developed by the researchers

Hypothesis Development

1. Teaching Quality and Student Satisfaction

Hok et al. (2021) showed that teaching quality affected student satisfaction in higher education in Cambodia. Effective teaching approaches such as clear instruction, subject expertise, interactive learning methods, timely feedback, and supportive lecturer-student interactions have a beneficial impact on student satisfaction. Likewise, the comprehensive quality of teachers, teaching level, teaching environment, etc., have a direct impact on students' feelings of studying in the university, and thus have an impact on their value judgments of the institution (Song, 2022). Similarly, Zhai (2022) and Suriadi et al. (2025) found that instructor and instruction and strong lecturer performance quality had substantial influence on student satisfaction. Hence, the hypothesis can be expressed as: ***H₁: Teaching quality has significant impact on student satisfaction.***

2. College Administration and Student Satisfaction

The college administration significantly impacts student satisfaction in higher education institutions. College administration influenced student happiness (Kaur & Bhalla, 2018). Students are more inclined to experience satisfaction when administration systems function efficiently and address their academic and personal requirements successfully. Administrative support also improves student evaluations of school professionalism, dependability, and service excellence. Studies by Amoako et al. (2023) and Surya Bahadur et al. (2024) demonstrated that administrative services were major components of service quality that positively influenced student happiness. Consequently, the hypothesis may be stated as: ***H₂: College administration has significant impact on student satisfaction.***

3. Campus Life and Social Integration and Student Satisfaction

Campus life and social integration are important in shaping student sense of belonging and overall well-being. Social integration helps students to form relationships with peers, professors and the university community that may enhance emotional well-being, academic motivation and institutional attachment. Students who are involved in activities on campus and are socially engaged tend to have a more positive view of their institutions and report higher levels of satisfaction. Hok et al. (2021) and Kieng et al. (2021) in their prior studies found that campus life and social integration had a substantial impact on student satisfaction. The hypothesis can therefore be formulated as: ***H₃: Campus life and social integration have impact on student satisfaction.***

4. Infrastructure facilities and Student Satisfaction

Infrastructure facilities are important in determining student happiness as they affect the quality of learning and the day-to-day life on campus. Well-maintained facilities offer students a comfortable and supportive academic atmosphere that improves learning effectiveness, academic engagement and overall university experiences. As seen from the empirical evidence from Kieng et al. (2021), quality infrastructure was an important factor for improving student happiness and generating a positive learning environment, which is consistent with the findings as Cao (2023) and Zhai (2023). So, the hypothesis can be developed as: ***H₄: Infrastructure facilities influence student satisfaction significantly.***

5. Institution Reputation and Student Satisfaction

The reputation of an institution bolsters student confidence and emotional connection to their universities, perhaps improving their educational experiences and perceptions of service quality. Hasan and Hosen (2020) revealed the substantial correlation between institutional reputation and student satisfaction, aligning with the findings of Mulyono

et al. (2020) and Mbango and NGOBENI (2022). The university's professional reputation, esteemed academic programs, high employability of graduates, and positive image contribute to student satisfaction. The hypothesis can be created as follows: ***H₅: Institution reputation influences student satisfaction significantly.***

6. Student Satisfaction and Student Loyalty

Content students are likely to persist in their education, endorse their universities to others by favorable word-of-mouth, engage in alumni events, and sustain a robust emotional connection to their institutions. Student satisfaction has been recognized as a necessity for cultivating student loyalty, as evidenced by a study conducted by DOAN (2021), which found that student loyalty was strongly impacted by student satisfaction, in agreement with the findings of Elistia et al. (2022) and Supriyanto et al. (2024). Therefore, the hypothesis can be articulated as: ***H₆: Student satisfaction significantly influences student loyalty.***

Variable Measurement and Questionnaire

The questionnaire comprised three distinct sections. Part A used a nominal scale, and Parts B and C were assessed using five-point Likert scales, ranging from "strongly dissatisfied" (1) to "strongly satisfied" (5). Nine items of teaching quality were derived from Farahmandian et al. (2013); college administration comprised five items adapted from Kaur and Bhalla (2018). Eight items of campus life and social integration were cited from Martirosyan (2015). Infrastructure facilities consisted of eight out of nine items adapted from Kaur and Bhalla (2018), with the sixth item sourced from Hossain et al. (2019). Institutional reputation included four items obtained from Ali et al. (2016), while student satisfaction consisted of five items adapted from Ali et al. (2016). Lastly, student loyalty comprised four items based on the research by Teeroovengadum et al. (2019).

Any research utilizing items for data collection, particularly those employing questionnaires, must assess item validity (Andrade et al., 2021). To assess content validity, the researcher proposed that three experts in higher education confirm and authenticate the questionnaire data using an Objective Index of Concordance (IOC). Ultimately, 38 of the 44 original items in the questionnaire were verified from three educational experts, with the IOC values ranged from 0.67 to 1.00. The six original items scoring below 0.50, consisting of CS5, CS6, IF4, IF7, IF9, and SS2, were removed from the questionnaire (Rovinelli & Hambleton, 1976). Furthermore, the pilot test was conducted with fifty students and found that the Cronbach's alpha values were above 0.70, ranging from 0.790 to 0.895, confirming that the questionnaire items exhibit excellent internal consistency (Hair et al., 2017).

Population and Sample Size

Many researchers determined the sample size by A-priori Sample Size Calculator for Structural Equation Modeling (DanielSoper, 2024). It was used by many studies conducted by Hok et al. (2021), Kieng et al. (2021), Long et al. (2021), Try et al. (2022), and Yeun (2022). The calculator suggested a minimum sample size of 425, when all inputs were entered, the anticipated effect size was set to 0.2, the statistical power level was set to 0.8, the number of latent variables was 7, the number of observable variables was 38, and the probability level was 0.05. For better statistical results, the final sample of 450 students exceeded the minimum requirement and was also consistent with SEM sample size recommendations proposed by Hair et al. (2017) and Kline (2023).

Table 1 showed that the population of the two private institutions in the 2024-2025 academic year, namely BELTEI International University and Western University, were 7,417 and 5,808 correspondingly, totaling 13,225 students. The total sample size of 450 were collected from each university based on the proportion percentage of students as 252 (56.08%) from BELTEI International University and 198 (43.92%) from Western University.

Table 1 Population and Sample Size by Selected Private Universities in 2024-2025

Universities	Population		Sample Size
	Amount	Percentage	
BELTEI International University (BIU)	7,417	56.08%	252
Western University (WU)	5,808	43.92%	198
Total	13,225	100.00%	450

Source: Constructed by the researchers

Sampling Techniques

Louis Cohen and Morrison (2018) asserted that the selecting of sampling technique is significantly determined by the purpose and nature of the study. Consequently, the sample is assuredly representative of the population, allowing for the estimation of population characteristics with established precision (Tripathi, 2024). This study used a multistage sampling technique. The initial step involved employing the purposive sampling to select two esteemed private universities in Phnom Penh: BELTEI International University and Western University. Subsequently, the proportional stratified sampling technique was employed to determine the number of students from each university. Immediately after obtaining the sample frame, random sampling was utilized to select student classes, following the researcher solicited collaboration from the university administration. The chosen students were contacted to fill a questionnaire through the online survey.

Data Preparation

Four hundred fifty participants filled questionnaires via a Google Form survey. Kline (2016) recommends analyzing univariate skewness and kurtosis to detect univariate outliers. As the skewness values did not surpass 3 and the univariate kurtosis score remained below 10, then the univariate outliers were absent in this study. However, the multivariate outliers were identified, as the p_1 or p_2 values of the Mahalanobis D^2 for the eleven cases consisting of 3, 13, 28, 32, 45, 69, 70, 121, 239, 289, and 422, were below 0.001. Thus, these cases were excluded from the dataset (Tabachnick & Fidell, 2019), and only 439 cases were preserved for descriptive and inferential analysis. Since all variable asymmetry and kurtosis values fell between -2 and +2, exhibiting a univariate normal distribution (George & Mallery, 2010). Furthermore, the multivariate kurtosis of 22.142 with a critical value of 4.207 less than 5.00 demonstrated the absence of serious multivariate normality in SEM analysis (Kline, 2016).

Demographics of Respondents

Regarding to major-gender crosstabulation, there were 99 (22.55%) of respondents studied Accounting, consisting of 7(1.59%) males and 92(20.96%) females. Additionally, 35 (7.97%) of respondents majored in Banking and Finance; including 15(3.42%) males and 20(4.56%) females. A total of 240 (54.67%) of respondents specialized in Business Management; comprising of 117(26.65%) males and 123(28.02%) females. Furthermore, 15(3.42%) of students majored in the field of Tourism and Hospitality Management; amounting to 6(1.37%) males and 9(2.05%) females. Lastly, 50(11.39%) of respondents studied the other fields; with 17(3.87%) males and 33(7.52%) females.

RESULT AND DISCUSSION

Confirmatory Factor Analysis (CFA)

Following the confirmatory factor analysis for individual constructs, 33 items were retained for subsequent SEM, while five particular items comprising of TQ1, TQ3, CA4, CS2, and CS8, were excluded due to their standardized loading values ranged from 0.083 to 0.382 which fell below the threshold of 0.50 (Hair et al., 2010). Figure 2 indicated that the model exhibited a good fit after modification, satisfied seven criteria of model fit: the chi-square value to degrees of freedom ratio (CMIN/DF) of 1.652, the root mean square error of approximation (RMSEA) of 0.039, the goodness-of-fit index (GFI) of 0.906, the adjusted goodness-of-fit index (AGFI) of 0.887, the normalized fit index (NFI) of 0.923, the Tucker-Lewis index (TLI) of 0.964, and the comparative fit index (CFI) of 0.968.

Hair et al. (2010) claimed that it is essential to validate construct validity and reliability before performing SEM. In the present study, reliability is assessed using Cronbach's Alpha and composite reliability, while construct validity is evaluated

through convergent and discriminant validity. Reliability refers to the consistency of measurement, whereas construct validity is used to confirm that the indicators accurately assess the intended construct. Hair et al. (2017) asserted that Cronbach's alpha and composite reliability scores exceeding 0.70 are appropriate for assessing internal consistency. Table 2 indicated that the Cronbach's alpha for all variables ranged from 0.838 to 0.935, and the composite reliability ranged from 0.839 to 0.935, both surpassing of 0.70. This indicated that the instrument possessed good reliability and consistently measured the same construct (Hair et al., 2017).

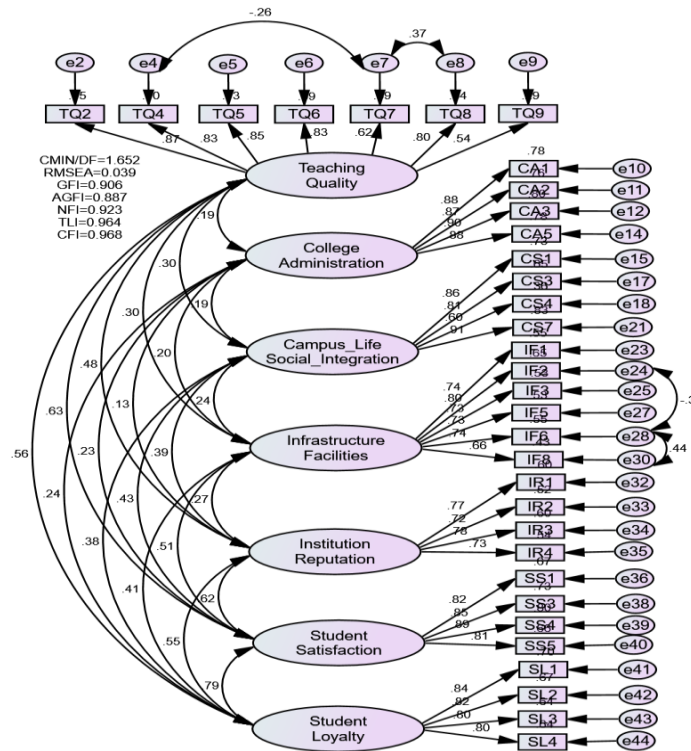


Figure 2 Modified Measurement Model for the Study
Source: Processed data by the researchers

Table 2 The Analysis Result of Confirmatory Factor Analysis

Constructs	Number of Items	Factor Loadings	Cronbach's Alpha	CR	AVE
Teaching Quality (TQ)	7	0.538-0.867	0.904	0.910	0.597
College Administration (CA)	4	0.871-0.897	0.935	0.935	0.782
Campus Life and Social Integration (CS)	4	0.602-0.910	0.867	0.876	0.644
Infrastructure Facilities (IF)	6	0.657-0.804	0.875	0.875	0.540
Institution Reputation (IR)	4	0.724-0.777	0.838	0.839	0.566
Student Satisfaction (SS)	4	0.813-0.893	0.906	0.908	0.713
Student Loyalty (SL)	4	0.798-0.836	0.887	0.887	0.663

Source: Constructed by the researchers

Construct validity refers to the extent to which a construct accurately measures the desired concept, following the establishment of convergent and discriminant validity (Hair et al., 2017). Convergent validity is determined by the values of Average Variance Extracted (AVE), which can be explained as amount of variance that a latent variable can explain. Table 2 clearly demonstrated AVE values ranged from 0.540 to 0.782, therefore, the convergent validity was confirmed since all values exceeded 0.50. By Fornell-Larcker criterion, the discriminant validity exists when the square root of the AVE values surpass all correlations among the constructs (Hair et al., 2017).

Table 3 Discriminant Validity- Fornell-Larcker Criterion

	TQ	CA	CS	IF	IR	SS	SL
TQ	0.773						
CA	0.187	0.884					
CS	0.299	0.190	0.803				
IF	0.302	0.201	0.245	0.735			
IR	0.476	0.127	0.393	0.268	0.752		
SS	0.628	0.232	0.432	0.506	0.616	0.844	
SL	0.563	0.238	0.384	0.405	0.548	0.787	0.814

Source: Constructed by the researchers

Table 3 showed that the square root of the AVE values locating in the diagonal cells were more than its correlations presenting beneath, so confirming the presence of the discriminant validity. Moreover, the Heterotrait-Monotrait (HTMT) ratio of correlations was conducted utilizing a specificity criterion threshold of 0.85. Moreover, Table 4 indicated that no correlations surpassed 0.85, hence confirming the discriminant validity of the research instrument (Henseler et al., 2015).

Table 4 Discriminant Validity: Heterotrait-Monotrait (HTMT) Ratio

	TQ	CA	CS	IF	IR	SS	SL
TQ							
CA	0.366						
CS	0.288	0.337					
IF	0.307	0.200	0.244				
IR	0.487	0.128	0.395	0.267			
SS	0.643	0.232	0.434	0.503	0.616		
SL	0.576	0.238	0.385	0.403	0.548	0.788	

Source: Constructed by the researchers

Structural Equation Modelling (SEM)

After the measurement model was thoroughly evaluated, indicating that it was a good fit, SEM has been performed to evaluate the hypotheses. According to Table 5, the model fit criteria after modification were classified as adequate, evidenced by the chi-square to degree of freedom ratio (CMIN/DF) of 1.665, the root mean square error of approximation (RMSEA) of 0.039, the goodness-of-fit index (GFI) of 0.903, the adjusted goodness-of-fit index (AGFI) of 0.887, the normalized fit index (NFI) of 0.921, the Tucker-Lewis index (TLI) of 0.963, and the comparative fit index (CFI) of 0.967. Consequently, the model fit criteria satisfied the recommended thresholds, indicating that the model was highly fit.

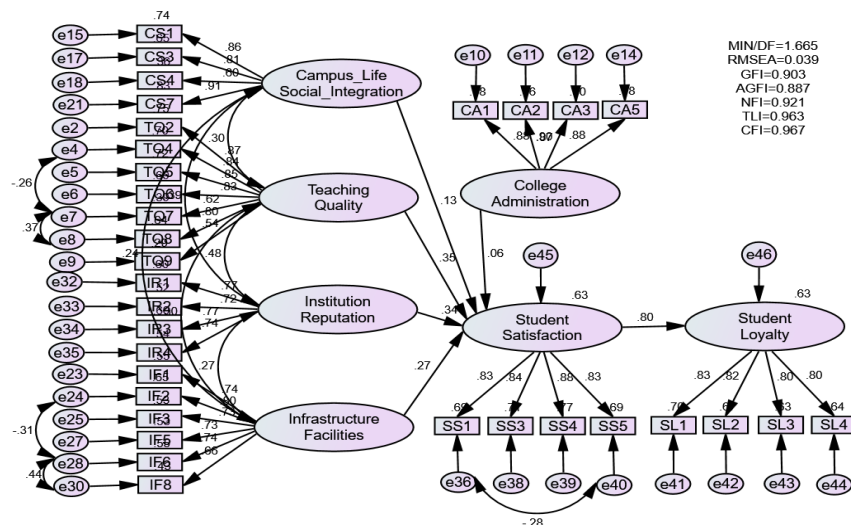


Figure 3 Modified Structural Equation Modeling
Source: Processed data by the researchers

Table 5 Goodness of Fit for Structural Equation Modeling

Index	Threshold Criteria	Before Modification	After Modification
CMIN/DF	< 3.00 (Kline, 2016)	2.090	1.665
RMSEA	< 0.05 (Schumacker & Lomax, 2016)	0.050	0.039
GFI	> 0.90 (Hair et al., 2010)	0.873	0.903
AGFI	> 0.85 (Hair et al., 2010)	0.854	0.887
NFI	> 0.90 (Hair et al., 2010)	0.899	0.921
TLI	> 0.95 (Hair et al., 2010)	0.940	0.963
CFI	> 0.95 (Hair et al., 2010)	0.945	0.967
Model		Lack of fit	Goodness of fit

Source: Constructed by the researchers

Hypothesis Testing

This research aims to examine the effect of key factors on student satisfaction and loyalty in selected universities in Phnom Penh. The results of hypothesis testing were summarized in Table 6.

1. Hypothesis 1: Since standardized $\beta = 0.346$ and $t\text{-value} = 7.823^*$, then hypothesis 1 was supported. Therefore, teaching quality influenced student satisfaction positively and significantly.
2. Hypothesis 2: Since standardized $\beta = 0.063$ and $t\text{-value} = 1.822$, then hypothesis 2 was not supported. Therefore, college administration had a positive but not significant impact on student satisfaction.
3. Hypothesis 3: Since standardized $\beta = 0.130$ and $t\text{-value} = 3.245^*$, then hypothesis 3 was supported. Hence, campus life and social integration had a positive and significant impact on student satisfaction.
4. Hypothesis 4: Since standardized $\beta = 0.274$ and $t\text{-value} = 6.667^*$, accordingly, hypothesis 4 was supported. Thus, infrastructure facilities had a positive significant impact on student satisfaction.
5. Hypothesis 5: Since standardized $\beta = 0.338$ and $t\text{-value} = 6.917^*$, so hypothesis 5 was supported. Hence, institution reputation had a positively significant impact on student satisfaction.
6. Hypothesis 6: With standardized $\beta = 0.796$ and $t\text{-value} = 15.875^*$, as a result, hypothesis 6 was supported. Student satisfaction influenced student loyalty positively and significantly.

Table 6 The Results of Hypothesis Testing

Hypotheses	Standardized coefficient (β)	t-value $t >1.96$	Test result
H1: Teaching quality -> Student satisfaction	0.346	7.823*	Supported
H2: College administration -> Student satisfaction	0.063	1.822	Not supported
H3: Campus life and social integration -> Student satisfaction	0.130	3.245*	Supported
H4: Infrastructure facilities -> Student satisfaction	0.274	6.667*	Supported
H5: Institution reputation -> Student satisfaction	0.338	6.917*	Supported
H6: Student satisfaction -> Student loyalty	0.796	15.875*	Supported

*Note: * Significance at $p\text{-value} < 0.05$*

Source: Constructed by the researchers

To sum up, the study discovered that the quality of teaching had a favorable and significant effect on student satisfaction. This shows that quality teaching,

competent tutors, and the learning environment are all important factors that influence student overall satisfaction with their learning experience, which result is consistent with previous findings (Hok et al., 2021; Liu & Li, 2025; Song, 2022; Suriadi et al., 2025). In addition, the study found that campus life and social integration had a statistically significant impact on student satisfaction. Students who actively engage in campus activities and form robust social interactions are more likely to be satisfied with their university experience. This result is supported by prior investigations by Alhamad et al. (2024), Kieng et al. (2021), Martirosyan (2015) and Zhang (2024). The research also indicated that infrastructure facilities had a significant impact on student satisfaction. Well-equipped classrooms, library, technology resources, and campus amenities increase student learning experiences and lead to better levels of overall satisfaction, which is in line with recent empirical studies (Cao, 2023; Ikram et al., 2025; Kaur & Bhalla, 2018; Zhai, 2023).

Further, the finding also found the substantial association between institution reputation and student satisfaction, which is consonant with prior research results (Ali et al., 2021; Hasan & Hosen, 2020; Mulyono et al., 2020; Yao, 2023). Students who view their university as credible and well-regarded are more likely to report satisfaction with their educational experience and with their institutional choice more generally. Besides, student happiness increased the favorable impact on their loyalty. This means that satisfied students are more likely to stay in the same university, recommend it to others and maintain a strong commitment to the university. This result is also in accordance with prior empirical investigations conducted by Supriyanto et al. (2024), Elistia et al. (2022), Mbango and NGOBENI (2022), and DOAN (2021). However, college administration had positive, but insignificant impact on student satisfaction, which is in contrast to the previous findings (Amoako et al., 2023; Sipayung, 2024; Surya Bahadur et al., 2024; Zhai, 2022). The administrative support may contributed slightly to improving student satisfaction, but did not meet the student needs.

CONCLUSION

This study empirically validates and extends the conceptual framework proposed by Heng et al. (2026) by examining the relationship five critical factors, student satisfaction and loyalty. The research firstly revealed that teaching quality significantly influenced student satisfaction. Lecturer factors play as the major contributors such as enthusiasm of lecturers towards the students, effectively teaching method, willingness to help students in their studies and self-development, effectiveness to motivate students to read the modules, efficiency in providing effective feedback on student performance, good communication with students, and well preparation for handling the tutorial sessions. Second, the study found that institutional reputation, reflected in graduates' employability, a university image, and reputable academic programs, significantly enhances student satisfaction.

Third, infrastructure facilities such as enough space for parking, sufficient playgrounds, adequate up-to-date books, well equipped classrooms, and adequate number of washrooms, which in turn leads to student satisfaction. Fourth, it found that campus life and social integration are important for student satisfaction. Those crucial dimensions of campus life and social integration are welcome feeling of students, feeling of belonging, and variety of offered intramural activities. Fifth, it indicated that college administration has positive but not statistically significant impact on the student satisfaction. The exclusive use of a quantitative approach may have constrained the depth of insights obtained, particularly regarding the perspectives of academic staff and university administrators. Lastly, it demonstrated that student satisfaction is very important for loyalty.

Implication

This study provides important theoretical and practical implications for higher education in Phnom Penh universities. The findings indicated that five dimensions of service quality act as key drivers that shape student overall university experience. These experiences influence student satisfaction as internal evaluations, which subsequently lead to loyalty outcomes such as continued enrollment intention and positive word-of-mouth. The study contributes to theory by extending SOR in the higher education context with supporting ECT in explaining how satisfaction is formed through expectation confirmation. Practically, the findings guide university managers to prioritize service quality improvement and student-centered strategies to boost satisfaction and strengthen long-term loyalty. For policymakers, the findings emphasize the need to establish policies which supporting quality assurance systems, lecturer development, digital transformation, and infrastructure improvement in higher education institutions.

Limitation and Further Research

This study has several limitations that should be taken into account. First, the research was only conducted in Phnom Penh, which may restrict the generalizability of the findings to other locations in Cambodia. Second, it solely applied quantitative approach which some information may not have been responded, especially from lecturers and managements. Third, the cross-sectional analysis which limits to measure changes in student satisfaction and loyalty over time. Fourth, although the study blends the SOR, ECT and service quality theory, it only focuses on service quality aspects while neglecting other potential variables. Therefore, it is recommended to extend the sample region to other provinces, apply mix research approaches, utilize longitudinal designs, and include additional variables such as student engagement to providing more comprehensive understanding of student satisfaction and loyalty in Cambodian higher education.

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