

Article

Empowerment of basic service quality in private higher education institutions in Malaysia

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Abstract: The purpose of this study is to determine the relationship between the exogenous variables (administrative support, career placement & employability, academic staff support, institutional factors, and information systems) as service delivery quality dimensions with satisfaction and moderating variable (academic and social integration) between endogenous variables (satisfaction and retention) among undergraduate students from Malaysian private higher education institutions. In order to accomplish the objectives proposed with hypotheses, a model reflecting the relationship between service delivery quality dimensions and satisfaction moderated by academic and social integration towards retention is applied. This empirical study focused on probability-stratified random sampling with a final sample size of 309 students. This study achieved statistically significant positive results by emphasizing academic and social integration as a moderating variable to achieve student retention by linking Perceived Performance Theory and Tinto's Interactionist Theory from satisfaction to retention. Evaluation of the structural model on the coefficient of determination for the model's predictive accuracy in this study produced an $R^2 = 0.85$ for satisfaction, suggesting nearly 85% of the variance in endogenous latent construct satisfaction is explained by all the service delivery quality dimensions linked to it. As for retention produced $R^2 = 0.74$, suggesting nearly 74% of the variance in endogenous latent construct retention is explained by all the service delivery quality dimensions linked together with satisfaction and academic and social integration as moderator. The model has a substantial effect with 0.76 in the Goodness-of-Fit index, indicating that the model has better explaining power.

Keywords: basic service; education; retention; satisfaction; perceived performance; social integration

1. Introduction

The success of a service depends on the value it creates for its users, particularly in the education sector, where intangible value is exchanged between the institution (seller) and the student (buyer). The key to retaining students is to provide factors contributing to a positive lifetime experience during their study period. This is achieved by delivering the desired result of the service: customer satisfaction (Krishna and Estelle, 2023; Olena et al., 2023; Raghavan and Ganesh, 2015).

However, in Malaysia, the value propositions offered by most private higher education institutions are based on technical quality inputs and outputs rather than customer-driven satisfaction and retention. As a result, the issue of student satisfaction and retention is becoming increasingly prevalent. Various studies reveal a decrease in student satisfaction, which affects their commitment to the institution and, ultimately, their retention (Goh et al., 2017; Ismail et al., 2018).

Moreover, previous studies have focused on public universities, and there needs to be a clear focus on students' retention. There is also a gap in the literature regarding the moderating variables influencing student retention, such as academic and social integration (Ismail et al., 2018; Nia et al., 2023). This paper aims to examine the determinants of academic and social integration with perceived performance, using Tinto's interactionist theory, in Malaysian private higher education institutions. Through this study, we aim to reveal students' perceptions of satisfaction towards retention and provide insight into improving value with lifetime experience for retention.

First, the paper briefly synthesizes the service quality literature, concentrating on education sector issues. Then, it focuses on measuring service quality performance in Malaysian private higher education, argues for the need for an exclusive design with perceived performance and academic and social integration, and offers direction for future research.

2. Student satisfaction in education institutions

Students dissatisfied with their higher education institution may withdraw or transfer to another institution. Alternatively, if dissatisfied students stay in an institution because they have no other option, they may not speak positively about the institution, which can affect future students' positive word-of-mouth referrals and the institution's long-term survival (Nia et al., 2023; Yidana et al., 2023).

Satisfaction can be defined as an attitude or judgment that interprets a series of consumer interactions or a person's feeling of pleasure (Kanwar and Sanjeeva, 2022). Generally, satisfaction includes three components: it is a cognitive or emotional response, it is related to a particular focus (such as service performance or consumer value experiences), and it occurs at a specific time.

Perceived service quality is an essential factor in student satisfaction and is necessary for establishing and sustaining student retention.

3. Student retention in education institutions

Retention is a critical factor for educational institutions' success. "Persistence" and "retention" are often used interchangeably, but the National Center for Education Statistics distinguishes between them. Institutions retain students while students persist (Hagedorn, 2005; Tinto, 1975). Unfortunately, some students are unable to complete their studies due to difficulties adjusting to the academic system and social environment. Studies suggest that student involvement, good social fit, and quality interaction with academic staff can improve retention rates (Krishna and Estelle, 2023).

Student retention refers to an educational institution's ability to provide students with a satisfactory experience and maintain a relationship with them over time (Nia et al., 2023). As competition in the education industry increases, retention has become more critical. It has serious implications for the institution's graduation rates, image projection, and long-term survival.

4. Administrative support

Administrative support is crucial for students in higher education institutions to achieve organizational excellence, as supported by Al-Alak and Alnaser (2012) and Lawson et al. (2012). Welsh and Metcalf (2003) argue that institutional effectiveness can be measured by assessing student learning outcomes, academic program review, strategic planning, administrative performance scorecards, performance benchmarking, and quality measurement. Gbadamosi and Jager (2010) suggest that service quality issues with administrative factors remain a focal point, particularly for non-academic and academic staff support. Therefore, it is essential to determine the zone of tolerance for students, as suggested by Vannairajan et al. (2011), because administrators need to know the point at which students cease to be satisfied.

Previous studies have shown that administrative support has a significant relationship with students' satisfaction and is an essential and relevant variable for educational institutions, as shown by Dadoa et al. (2012), Johnston (1995), Krishna and Estelle (2023), Lai et al. (2011), Parasuraman et al. (1985), Seng (2013) and Wei (2011). These studies suggest that assessing and understanding the administrative service dimension would enable institutions to design their service delivery processes more efficiently and effectively to predict satisfaction, as indicated by Abdullah (2005a, 2005b) and Ravichandran and Kumar (2010).

5. Career placement and employability

It is crucial to focus on developing university students' employability or work readiness by equipping them with various abilities that will enable them to make effective contributions to an organization's goals and productivity. According to research, employers in Malaysia are increasingly seeking graduates with a balance of good academic achievements and the right soft skills, also known as employability skills (Nurita et al., 2004; Singh and Singh, 2008; Yidana et al., 2023). These include problem-solving, interpersonal, flexibility, and communication skills. Concentration internships could be an effective way to develop and improve teamwork skills, which, in turn, enhance students' innovation skills to solve problems (Krishna and Estelle, 2023; Singh and Singh, 2008).

In a holistic manner, studies have shown that students' career preparation is linked to their perception of being well-prepared by their faculty and institution (Singh and Singh, 2008), and this should be related to their chosen discipline of study. Students who can connect their program of study and career goals view their institutions positively. Moreover, research indicates that students who receive guidance and advice on their career preparation are more likely to be satisfied (Kanwar and Sanjeeva, 2022; Nurita et al., 2004; Singh and Singh, 2008). There is also a significant relationship between students' satisfaction and career services, career placement, and employability.

6. Academic staff support

In analyzing student evaluations, low student achievement can be related to multiple factors including teaching and learning, teacher quality, school curricula,

teaching strategies for different levels of student development, and the learning environment (Bergamo et al., 2012; Lawson et al., 2012; Yidana et al., 2023).

The impact of a lecturer's contribution to the classroom and student achievement is clear, as student achievement is primarily determined by the quality of the lecturer, the instructional program, and their leadership qualities (Ganesh and Hashlinda, 2019; Krishna and Estelle, 2023; Korkmaz, 2007; Raghavan and Ganesh, 2015). Therefore, the lecturer's interaction with students and their academic achievement is central to evaluating academic service quality delivery by students (Olena et al., 2023; Vatta and Bahatta, 2013).

7. Institutional factors

Service quality consists of various factors such as performance, features, reliability, conformance, durability, serviceability, aesthetics, and perceived quality (Garvin, 1987). To improve students' perception of an institution's image, it is essential to incorporate tangible elements in service delivery. Institutional factors are influenced by an individual's beliefs, ideas, and impressions about an institution, forming an image together (Kanwar and Sanjeeva, 2022; Kotler and Fox, 1995).

The factors that contribute to institutional factors include recognized programs such as accreditation and reputability, industrial specializations, academic staff reputation, service utilities, and employment prospects (Brewer and Zhao, 2010; Lawson et al., 2012; Yidana et al., 2023). Other factors include academic reputation, course suitability, job prospects, teaching quality (Soutar and Turner, 2002), quality of the education offered, reputation, career opportunities, faculty qualification, academic standard, curriculum and facilities, student life and traineeships (Kanwar and Sanjeeva, 2022; Lin, 1997; Olena et al., 2023).

To improve service quality and standardize service delivery, institutions need to implement essential quality tools that can manage and improve processes, ultimately leading to better performance (Krishna and Estelle, 2023; Zabadi, 2013).

8. Information systems

Information systems and technology play an integral role in consumers' lives in today's knowledge society. According to Hung et al. (2013) and Xu et al. (2013), data generation is closely linked with technology. Pougatchev and Kulkarni (2011) highlighted that information systems are the most critical attribute in the successful management of educational institutions. High-performance educational institutions must have efficient, effective, and robust multi-user systems with all the relevant internet and intranet facilities and learning management systems (Kanwar and Sanjeeva, 2022; Lee and Ryu, 2013; Pougatchev and Kulkarni, 2011). An integrated management information system will enable organizations to achieve their goals by fulfilling customers' needs and wants.

Similarly, research indicates that information systems are crucial to the success of educational institutions. Dias and Diniz (2014) and Lankton and McKnight (2012) found that information systems have a significant relationship with students' satisfaction, leading to higher retention rates. Information systems and technology play an integral role in consumers' lives in today's knowledge society. According to

Hung et al. (2013) and Xu et al. (2013), data generation is closely linked with technology. Pougatchev and Kulkarni (2011) highlighted that information systems are the most critical attribute in the successful management of educational institutions.

Studies have shown that high-performance educational institutions must have efficient, effective, and robust multi-user systems with all the relevant internet and intranet facilities and learning management systems (Lee and Ryu, 2013; Olena et al., 2023; Pougatchev and Kulkarni, 2011). An integrated management information system will enable organizations to achieve their goals by fulfilling customers' needs and wants.

9. Academic and social integration

Academic and social integration are crucial for students to succeed in their studies. However, achieving university qualifications can be stressful due to students' demands, expectations, and goals. As a result, students often feel emotional and cognitive reactions to stress.

Academic and social integration is affected by personal and situational factors that influence students' ability to cope with the social environment (Gerber et al., 2013; Lawson et al., 2012; Wong and Chapman, 2023). Academic factors, such as the ability to search for information and problem-solving skills, are closely related to education progress.

Perception and discomfort in the university environment, academic enjoyment and motivation, and psychological well-being are essential factors that affect students' ability to cope with academic stress (Gerber et al., 2013; Lawson et al., 2012; Wong and Chapman, 2023; Yidana et al., 2023). A high sense of academic control moderates academic coping, reducing stress and discomfort, and a lower sense of academic control. With that, the interactions with academic demands, social adjustment, and student engagement can affect students' academic experience during a semester or period of education.

Therefore, creating a comfortable academic environment is vital to increasing perceived psychological well-being and academic enjoyment, contributing to motivation, and positively affecting student retention satisfaction.

10. Theoretical background

10.1. The perceived performance theory

The perceived performance theory suggests that a product or service performs so well that the consumer's expectations are discounted in their reactions to it. This means that satisfaction judgments are primarily determined by the perceived product performance and are independent of prior expectations (Gandhi and Saini, 2013; Rahman et al., 2012; Oliver and DeSarbo, 1988). In other words, only the perception of quality is essential, and the critical determinant of satisfaction is a consumer's perceptions of the product's performance during use (Lawson et al., 2012). This is known as "unapprised cognition," meaning that if no comparison operator is used, product/service performance may directly influence satisfaction (Lawson et al., 2012).

The effects of perceived performance outcome on satisfaction can be strengthened by enforcing the perceived performance concept as an antecedent to disconfirmation of some standard or as a direct antecedent of satisfaction (Mahapatra et al., 2010; Tu et al., 2013; Tudorn et al., 2012). Similarly, in education services, perceived performance is an antecedent to students' satisfaction (Yidana et al., 2023).

In situations where consumers are forced to purchase an inferior product/service or brand/education institution, they may still be dissatisfied because of the alternative product's inferior performance (Lawson et al., 2012). Therefore, product quality, perceived value, and delivery performance are crucial for customer loyalty because satisfaction is a post-purchase behavior (Mahapatra et al., 2010; Tu et al., 2013; Tudorn et al., 2012).

If consumers purchase new brands/services and experience a high pre-experience standard, they may still be satisfied with the particular product/service if it has more of the desired attributes than competing products (Lawson et al., 2012; Yidana et al., 2023).

In situations where consumers have had a bad experience, the perceived performance construct is vital in forming their satisfaction or dissatisfaction and consumer retention (Lawson et al., 2012). Learning from experience is an important consumption motive, particularly when purchasing a new service or product (Yidana et al., 2023). In these cases, the individual will most likely be satisfied whenever the purchased service or product performs well, and pre-experience comparison standards are unnecessary.

10.2. Tinto's interactionist theory

According to interactionist theory, suicide results from an individual's separation from society as a result of a lack of value integration, which leads to an incapacity to cope and an insufficient sense of belonging to join the larger society (Tinto, 1975; Hatos and Zoltan, 2011). Assume that in the event of suicide, disengagement is explained by a lack of value integration. In that instance, students who leave educational institutions may have the exact causative mechanism (Hatos and Zoltan, 2011).

It is claimed that students bring some background traits when they enroll in an educational institution, especially traits related to their character, aptitude, and motivation. Based on these, the student's initial interaction with the university is initiated (Ganesh et al., 2019; Raghavan and Ganesh, 2015). Additionally, the student engages with the academic setting, and these interactions shape the student's commitments and plans to remain at that particular institution (Bergamo et al., 2012; Schee, 2011). Furthermore, students' dedication to their objectives rises when they integrate more fully into the institution's culture, which promotes retention (Bergamo et al., 2012; Braxton et al., 2004). It was also mentioned that students only need to feel like they belong to a particular subculture in order to feel like they are a part of it, rather than having to fit in with the campus community as a whole (Beard, 2011; Tinto, 1993). This is enough to provide students with a sense of social integration.

On the other hand, if the student finds it challenging to integrate into the academic and social communities at their institution, this will have a negative impact on their

goals and institutional commitments, which will ultimately cause them to leave the institution (Bergamo et al., 2012; Caison, 2007). One of the most critical indicators of a student's eventual departure from the school is the lack of interaction with other members (Pascarella and Terenzini, 1979). As a social approach to behavior, research also supports the importance of extracurricular activity involvement, social contact, and students' feelings of peer support (Gerber et al., 2013; Neuville et al., 2007).

From the exploration of the literature review, this study put forward the following hypothesis.

Ha1: There is a positive relationship between academic staff support and students' satisfaction with retention.

Ha2: There is a positive relationship between administrative support and students' satisfaction with retention.

Ha3: There is a positive relationship between career placement and employability and students' satisfaction.

Ha4: There is a positive relationship between institutional factors and students' satisfaction with retention.

Ha5: There is a positive relationship between information systems and students' satisfaction with retention.

Ha6: There is a positive relationship between students' satisfaction and student retention.

Ha7: There is a positive relationship between academic and social integration that moderates students' satisfaction toward retention.

11. Research design—Population and sampling

This study is based on a correlational research design with a cross-sectional approach. It adopts a hypothetico-deductive method that follows a seven-step process: observation, preliminary information gathering, theory formulation, hypothesizing, further scientific data collection, data analysis, and finally, deduction.

11.1. Population and sampling

The study aims to examine undergraduate students enrolled in private higher education institutions in Malaysia, irrespective of their mode of study or program. The sampling method involved probability-stratified random sampling, with guidance from participating institutions to reach the target respondents effectively. Based on National Education Statistic: Macro Higher Education Institutions 2022, released in 2023 by the Ministry of Education Malaysia on universities, university colleges, and university branch campuses were used to develop the student sampling size.

The following steps guided the process of selecting the respondents:

(1) The total size of the students' population was determined to be $N = 460,145$. Based on Krejcie and Morgan's (1970, cited in Sekaran (2005)) recommendation, a sample size of 384 respondents is appropriate for a study involving a population of over 100,000. Additionally, a 30% increase was applied to achieve a large enough sample size, resulting in a total sample size of 500 students. Delice (2010) argues that a sample size of 500 is essential and sufficient at a 5% confidence level, and Cohen et al. (2000) suggest always overestimating the sample size.

(2) The sample was stratified according to three levels of private higher education institutions, and the total number of students was selected accordingly: 351 colleges/institutions = 223,761 students; 31 university colleges = 44,813 students; 60 universities = 191,571 students. The desired sample size was achieved by identifying the percentage of the sample size required based on the total population according to the levels of private higher education institutions (Yount, 2006).

(3) The registration records of students were obtained with the guidance of participating institutions.

(4) The participating institution has emphasized that the students’ learning time should not be interrupted and agreed to arrange simple random sampling by identifying every fifth student based on their matriculation numbers from their selected class.

Table 1 provides a breakdown of the population size for private higher education institutions.

Table 1. Breakdown of population size.

Private Higher Education	No.	Total No. of Students	Required Percentage	Required No. of Students
College/Institutions	351	223,761	48.63	243
University Colleges	31	44,813	9.74	49
Universities	60	191,571	41.63	208
Total	442	460,145	100%	500

The stratification process according to three levels of private higher education institutions and its total numbers of students: 351 colleges/institutions = 223,761 students; 31 university colleges = 44,813 students, 60 universities = 191,571 students. The desired sample size was achieved by identifying the percentage (proportionate) of the sample size required based on the total population according to the levels of private higher education institutions (Yount, 2006).

11.2. Instrument and measurement

This study employed closed-ended questionnaires with space for respondents to provide additional information. The questionnaire was modified and adapted from Abdullah (2005a) and Davidson et al. (2009) with 7-point Likert-type scales.

Research findings reveal that, to ensure validity and reliability, a minimum of a seven-point scale is required (Foddy, 1994). In addition, the reliability tends to be higher and supports the questionnaire that has seven response categories, and it also appears to be most prevalent (Birkett, 1986; Dawes, 2008). From this context, expert opinion was sought on the organization of the questionnaire with the following aspects: first, the questionnaire’s ability to identify the differences in service delivery quality dimensions; second, its ability to describe individual and group characteristics; third, the conciseness of the instrument to avoid reluctance to complete it and ease of understanding by respondents; fourth, the reliability and validity of the instrument (Churchill et al., 2009; Pallant, 2010; Sekaran, 2005; Zikmund et al, 2012).

11.3. Ethical considerations

Each participant involved in the study was informed about the purpose, procedure, and structure of the research. All respondents were assured that the information obtained would remain anonymous and that measures were taken to minimize non-response bias.

11.4. Data analysis

This study used a sample size of 309 fully completed questionnaires with cross-tabulation techniques for demographic analysis and Smart Partial Least Squares version 2.0 Structural Equation Modeling with a boot-strapping procedure using 1000 sub-samples was performed to evaluate the statistical significance of each path coefficient (Chin, 1998). With that, the reflective measurement models are assessed on internal consistency reliability, indicator reliability, convergent validity, and discriminant validity (Jr. Hair et al., 2014).

11.5. Reliability and convergent validity

The composite factor reliability coefficients of the constructs were above 0.90, thus meeting the requirement suggested by Fornell and Lacker (1981) and Henseler et al. (2009), which is 0.70. Thus, internal consistency reliability was fulfilled, and all constructs produced values above 0.50. Thus, fulfilling the average variance extracted (AVE). **Table 2** shows the values for composite reliability and average variance extracted.

Table 2. Composite reliability & average variance extracted.

Service Delivery Dimensions	AVE	Composite Reliability
Acad SS	0.662436	0.931991
Admin S	0.675524	0.943294
Career PE	0.681491	0.895235
Info Sys	0.740055	0.934326
Inst Fac	0.69288	0.945808
AcaSocio	0.799458	0.915023
SAT	0.820010	0.958996
RET	0.7375	0.933335

11.6. Discriminant validity

Table 3 highlights the constructs and their discriminant validity where the square roots of the average variance extracted values are steadily larger than the off-diagonal correlations, suggesting discriminant validity at the construct level.

Table 3. Constructs and discriminant validity.

	AcaSocio	Acad SS	Admin S	Career PE	Info Sys	Inst Fac	RET	SAT
AcaSocio	0.894							
Acad SS	0.743114	0.813						
Admin S	0.621669	0.658556	0.821					
Career PE	0.743755	0.823949	0.693948	0.825				

Table 3. (Continued).

	AcaSocio	Acad SS	Admin S	Career PE	Info Sys	Inst Fac	RET	SAT
Info Sys	0.734742	0.642076	0.630659	0.737686	0.860			
Inst Fac	0.829324	0.748995	0.678992	0.773541	0.790927	0.832		
RET	0.841091	0.714206	0.591447	0.693163	0.700351	0.813602	0.858	
SAT	0.894124	0.773192	0.701535	0.802113	0.799571	0.904224	0.836342	0.905

12. Demographics finding

12.1. Gender

Table 4 contains the frequency data depicting the percentages of students of each gender. Of the 309 respondents who completed the questionnaire, 128 (41.4%) were male, and 181 (58.6%) were female. There could be various reasons for this situation: there might be more female than male students in private higher education institutions in Malaysia, or there might be more females enrolled in certain programs.

Table 4. Frequency percentage data on gender.

Gender	Frequency	Percent
Valid Male	128	41.4
Valid Female	181	58.6
Total	309	100.0

12.2. Age group

Most students belonged to the 18–24-year age group, constituting 92.2% of the sample with 285 people (**Table 5**), followed by the 25–32-year age group, with 19 students (6.1%). This indicates that the majority of students in private higher education are from the 18–24-year age group. This situation is common in Malaysia, as students generally complete school education at the age of 17 and then enroll in higher education institutions from 18 to about 25 years of age to complete their degree programs.

Table 5. Frequency data on respondents' age.

Age	Frequency	Percent
Valid 18–24	285	92.2
Valid 25–32	19	6.1
Valid 33–40	3	1.0
Valid 41+	2	0.6
Total	309	100.0

12.3. Year of study

The findings in **Table 6** highlight the percentage of respondents in each year of the study. The highest number of students was in Year 2, at 42.1%, followed by Year 3, at 31.7%. This reveals that Year 2 students were more readily available than Year 1 students. In addition, Year 2 and Year 3 students will likely be better able to evaluate

service delivery, as they have been in the institution for more than one year. **Table 6** provides the details on the sample in terms of the year of study.

Table 6. Frequency data on year of study.

Year of study	Frequency	Percent
Year 1	63	20.4
Year 2	130	42.1
Year 3	98	31.7
Year 4	13	4.2
Others	5	1.6
Total	309	100.0

13. Hypotheses analysis and finding

According to the study, the findings are as follows: Firstly, academic staff support and satisfaction have a significantly positive relationship ($\beta = 0.118, p < 0.01$), which supports Hypothesis 1, as shown in **Table 7**. This means that academic staff support has a direct positive effect on satisfaction. Satisfaction changes in direct proportion to academic staff support, with a coefficient of 0.118. This means a 100-point change in academic staff support will result in an 11.8-point change in satisfaction.

Secondly, the relationship between administrative support and satisfaction is significantly positive ($\beta = 0.069, p < 0.05$), supporting Hypothesis 2. This indicates that administrative support directly impacts satisfaction, and satisfaction changes in direct proportion to administrative support, with a coefficient of 0.069.

Thirdly, the study found that the relationship between career placement and employability and satisfaction is significantly positive ($\beta = 0.105, p < 0.05$), supporting Hypothesis 3. Thus, career placement and employability directly influence satisfaction, with satisfaction changing in direct proportion to career placement and employability, with a coefficient of 0.105.

Fourthly, the study found that the relationship between institutional factors and satisfaction is significantly positive ($\beta = 0.562, p < 0.01$), supporting Hypothesis 4. This indicates that institutional factors directly influence satisfaction, and satisfaction changes in direct proportion to institutional factors, with a coefficient of 0.562 (**Table 7**).

Fifthly, the study found that the relationship between information systems and satisfaction is significantly positive ($\beta = 0.157, p < 0.01$), supporting Hypothesis 5. This indicates that information systems directly influence satisfaction, and satisfaction changes in direct proportion to information systems, with a coefficient of 0.157 (**Table 7**).

Sixthly, the relationship between satisfaction and retention is significantly positive ($\beta = 0.232, p < 0.05$), supporting Hypothesis 6. This shows that satisfaction directly influences retention, and satisfaction changes in direct proportion to retention, with a coefficient of 0.232 (**Table 7**).

Lastly, the relationship between academic and social integration with retention is significantly positive ($\beta = 0.319, p < 0.01$). Thus, any change in academic and social integration is directly proportional to retention, with a coefficient of 0.319 (**Table 7**).

Table 7. Path coefficients (Mean, STDEV, *T*-values).

Path	Beta	Mean (M)	(STDEV)	<i>t</i> -values	Hypothesis
Acad SS → SAT	0.118516**	0.122275	0.045006	2.633344	H1: Supported
Admin S → SAT	0.069325*	0.068353	0.033621	2.061945	H2: Supported
Career PE → SAT	0.105108*	0.104564	0.048022	2.188721	H3: Supported
Inst Fac → SAT	0.562903**	0.562859	0.058644	9.598567	H4: Supported
Info Sys → SAT	0.157002**	0.155848	0.039374	3.987475	H5: Supported
SAT → RET	0.232641*	0.233791	0.107785	2.158377	H6: Supported
SAT * AcaSocio → RET	0.329416*	0.324319	0.151608	2.17281	H7: Supported

* $p < 0.05$; ** $p < 0.01$.

Table 7 shows that satisfaction and retention have a significantly positive relationship, which is influenced by academic and social integration. The results indicate that the interaction construct produced a path coefficient of 0.329 with a significance of $p < 0.05$ ($t = 2.172$), supporting Hypothesis 7. This means that at a value of 0.319 for academic and social integration, the relationship between satisfaction and retention produced a value of 0.232. If academic and social integration increases by one standard deviation point, the relationship between satisfaction and retention would increase by the interaction term's size, reaching a value of $0.232 + 0.329 = 0.561$. Therefore, the relationship between satisfaction and retention is also higher when academic and social integration is higher.

Finally, the finding reveals a significant positive correlation between service delivery dimensions and students' satisfaction towards retention in Malaysian private higher education institutions. The values of R^2 for satisfaction and retention are 0.85 and 0.74, respectively. The model has high predictive accuracy and is classified as having a substantial effect. This finding supports the overall objective of the study.

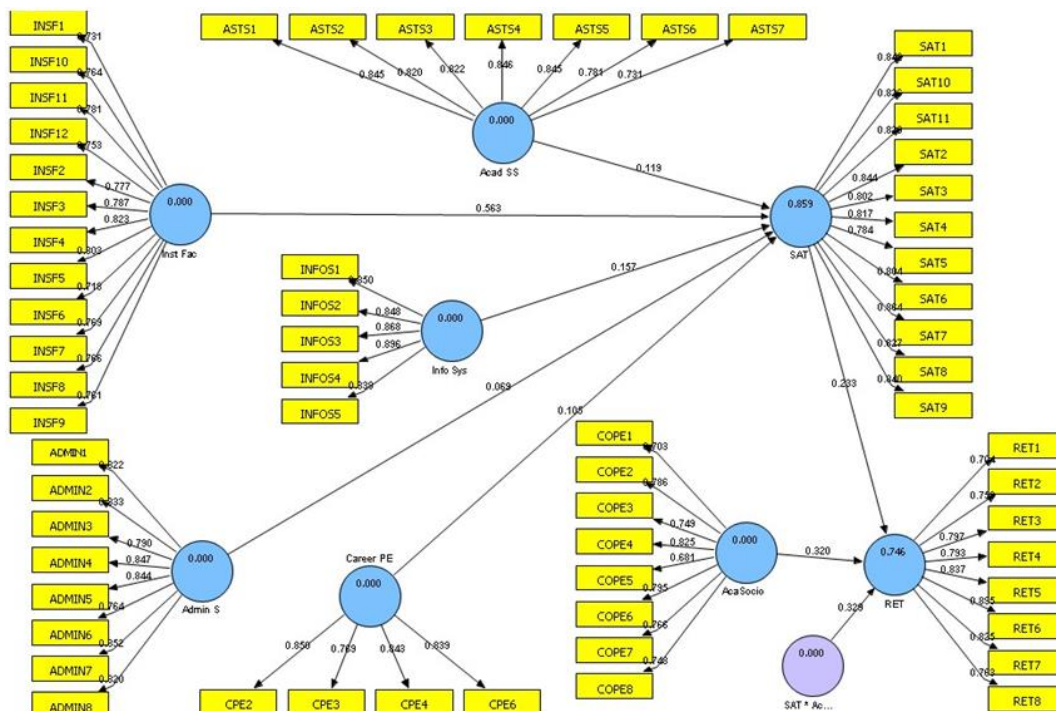


Figure 1. Structural model.

Figure 1 is depicted on the structural model, which reflects the framework with the application of the theory.

The coefficient of determination of R^2 , f^2 and q^2 effect sizes

In order to evaluate the structural model, the coefficient of determination R^2 is utilized to assess the model’s predictive accuracy. Jr. Hair et al. (2014) classify R^2 values of 0.25, 0.50, or 0.75 as weak, moderate, or substantial, respectively. This study produced R^2 values of 0.85 for satisfaction and 0.74 for retention, which are classified as having substantial effects on the research structural model. **Table 8** provides details on the R^2 results.

Table 8. R^2 and Q^2 values of endogenous constructs.

Service Delivery Dimensions	AVE	R^2	Q^2
Acad SS	0.662436		
Admin S	0.675524		
Career PE	0.681491		
Info Sys	0.740055		
Inst Fac	0.69288		
AcaSocio	0.799458		
SAT	0.820010	0.746	0.469
RET	0.7375	0.859	0.580

In addition, to understand further the impact of the structural model, the f^2 effect size, the predictive relevance Q^2 , and the q^2 effect size (Cohen, 1988, 1992; Chin, 1998; Geisser, 1975; Henseler et al., 2009; Jr. Hair et al., 2014) were also examined.

This analysis revealed Q^2 values of 0.469 for satisfaction and 0.580 for retention, both of which were considerably above zero. These findings indicate that the model has sizeable predictive relevance for the endogenous constructs.

Table 9 reflects the finding on f^2 and q^2 Effect Size on endogenous constructs. The f^2 effect size of administrative support on satisfaction was small. As for the other constructs, only institutional factors produced an f^2 effect size of 0.56 (large): of the remaining factors (career placement and employability, academic staff support, information systems) had small effect sizes, while academic and social integration as a moderating construct for retention produced an effect size of 0.18 (medium).

Table 9. Details on f^2 and q^2 effect size on endogenous constructs.

Constructs	Satisfaction			Retention		
	Path Coefficient	f^2 effect size	q^2 effect size	Path coefficient	f^2 effect size	q^2 effect size
Administrative Support	0.069	0.01	0.02			
Career Placement & Employability	0.105	0.02	0.02			
Academic Staff Support	0.118	0.03	0.03			
Institutional Factors	0.562	0.56	0.11			
Information System	0.157	0.05	0.02			
Academic and Social Integration				0.329	0.18	0.03

In addition to f^2 effect size, the relative impact of the predictive relevance of this study's structural model was compared using q^2 effect size (Jr. Hair et al., 2014). All the exogenous constructs (i.e., administrative support, career placement and employability, academic staff support, institutional factors, and information systems) produced small effect sizes for their predictive relevance on satisfaction, as did academic and social integration as a moderating construct in relation to retention.

14. Discussion and conclusion

This study reveals that, with academic and social integration functioning as a moderator, the performance of service delivery quality dimensions focusing on satisfaction and retention can effectively contribute to the value proposition in private higher education institutions. It demonstrates to private universities that putting satisfaction as the only priority is insufficient. Private higher education institutions should place priority on students' retention in order to prosper and dominate the market.

The structural model and hypotheses were evaluated with path coefficients (β) (Table 7). First, the positive and substantial correlation ($\beta = 0.118$, $p < 0.01$) between academic staff support and satisfaction supported Hypothesis 1. This implies that academic staff support has a direct bearing on student satisfaction. Second, there was a strong and positive association ($\beta = 0.069$, $p < 0.05$) between administrative support and satisfaction, confirming Hypothesis 1.

Third, there was a positive correlation between career placement and employability with satisfaction ($\beta = 0.105$, $p < 0.05$), supporting Hypothesis 3. Hypothesis 4 was supported by revealing a substantial positive association ($\beta = 0.562$, $p < 0.01$) between institutional characteristics and satisfaction. Hypothesis 5 is supported by the fifth finding, which showed a positive association ($\beta = 0.157$, $p < 0.01$) between information systems and satisfaction. The findings also supported Hypothesis 6 with a path coefficient of 0.329 for the academic and social integration interaction, with ($p < 0.05$; $t = 2.172$). Finally, Hypothesis 7 revealed a positive path coefficient of 0.232 for the association between retention and satisfaction ($\beta = 0.232$, $p < 0.05$).

Ultimately, our research demonstrated that, indeed, there is a strong positive correlation between the quality of service and satisfaction towards retention of students at Malaysia's private higher education institutions. With satisfaction and retention scores of $R^2 = 0.74$ and $R^2 = 0.85$, respectively, the model demonstrated predictive accuracy and can be categorized as having a significant impact. This result confirms the study's hypothesis that service quality positively correlates with students' retention and satisfaction in Malaysian private educational institutions. In the context of theoretical comprehension and the body of knowledge, service quality is emphasized in determining student retention at Malaysia's private higher education institutions.

This study has shown a significant pathway indicating that private higher education institutions should not stop at satisfaction with applying perceived performance theory. The importance of retention should be emphasized, and the context of Durkheim's suicide theory, which shows that an individual's disengagement from society stems from their inability to cope with, assimilate, or

integrate, as established by Tinto's Interactionist Theory (Hatos and Zoltan, 2011; Tinto, 1975), should be focused (Hatos and Zoltan, 2011).

Using Tinto's interactionist theory, this study extends and supports perceived performance contribution from satisfaction to retention by emphasizing the need for academic and social integration in private higher education institutions. This does not remove the possibility that private higher education institutions will require additional funding to function better. The study demonstrates the importance of prioritizing student satisfaction as the primary customer base for retention. The degree of focus required on the quality of service is shown by the emphasis on academic and social integration, which may be a crucial element for customer retention in the educational institution.

This research contributes to the body of knowledge by strengthening and extending the theoretical discourse on the perceived performance view in relation to students' satisfaction, with an extension to retention, by incorporating Tinto's interactionist theory to empirically demonstrate the strength of the relationship between the performance of service quality dimensions and students' satisfaction and retention, with academic and social integration.

Apart from the study contribution, this study has various limitations. First, it does not attempt to account for students enrolled in similar programs overseas; this research only considers students enrolled in private higher education institutions in Malaysia. Second, while the study was only limited to enrolled students, it could have a substantial impact on other stakeholders, including parents, graduates or past students, employers, employees, elected officials, and non-governmental groups.

Third, a quantitative method with a correlational research design is employed in this cross-sectional study. There was only one respondent category that was sufficiently represented—students at private higher education institutions—and one point in time. In order to fully address the problems of satisfaction, retention, and service quality variables, qualitative with longitudinal research may be considered.

All things considered, this study makes a substantial contribution to the body of knowledge, practice, and policy pertaining to the management of service quality to boost customer retention and satisfaction. However, future research should investigate the connection between additional potential exogenous variables and their anticipated impacts on students' retention and satisfaction. For example, demographic factors such as moderating or mediating variables, longitudinal studies with qualitative approaches, additional sampling frames from staff from both private and public higher education institutions, students from public higher education institutions, and parents' satisfaction with their children's progress.

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