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SERVICE QUALITY AS A DRIVER OF STUDENTS' LEARNING OUTCOMES: EMPIRICAL EVIDENCE FROM THE PRIVATE HIGHER EDUCATION CONTEXT

QUALIDADE DO SERVIÇO COMO FATOR DETERMINANTE DOS RESULTADOS DE APRENDIZAGEM DOS ALUNOS: EVIDÊNCIAS EMPÍRICAS DO CONTEXTO DO ENSINO SUPERIOR PRIVADO

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Abstract
Private Higher Educational institutions are always struggling to ehnace student satisfaction learning outcomes. Therefore, this research aims to highlight the impact of service quality on student learning outcomes in private higher education institutions in Bahrain. Moreover, it seeks to determine the mediating role of student satisfaction in the relationship between service quality and learning outcomes. Furthermore, it aims to determine the moderating role of student engagement between student satisfaction and student learning outcomes. A quantitative survey approach was employed, utilizing PLS-SEM for data analysis to test the hypotheses. The study used a proportionate sample technique, gathering data from 89 respondents from private higher education institutions in Bahrain. The results reveal a significant influence of service quality on students' learning outcomes, with student satisfaction mediating this relationship. In addition, the findings demonstrated the significant moderating role of student engagement in the relationship between student satisfaction and student learning outcomes. These findings provide valuable insights for managers and administrators of higher education institutions, enabling them to develop an effective quality service delivery system to enhance students' academic performance.

Keywords: Higher Education. Learning Outcome. Students Satisfaction. Service Quality. Student Engagement.

Resumo
As instituições privadas de ensino superior enfrentam desafios constantes para melhorar a satisfação dos alunos e os resultados de aprendizagem. Portanto, esta pesquisa visa destacar o impacto da qualidade do serviço nos resultados de aprendizagem dos alunos em instituições privadas de ensino superior no Bahrein. Além disso, busca determinar o papel mediador da satisfação do aluno na relação entre a qualidade do serviço e os resultados de aprendizagem. Ademais, visa determinar o papel moderador do engajamento do aluno entre a satisfação do aluno e os resultados de aprendizagem. Foi empregada uma abordagem quantitativa por meio de pesquisa, utilizando PLS-SEM para análise de dados e teste das hipóteses. O estudo utilizou uma técnica de amostragem proporcional, coletando dados de 89 respondentes de instituições privadas de ensino superior no Bahrein. Os resultados revelam uma influência significativa da qualidade do serviço nos resultados de aprendizagem dos alunos, com a satisfação do aluno mediando essa relação. Além disso, as descobertas demonstraram o papel moderador significativo do engajamento do aluno na relação entre a satisfação do aluno e os resultados de aprendizagem. Essas descobertas fornecem informações valiosas para gestores e administradores de instituições de ensino superior, permitindo-lhes desenvolver um sistema eficaz de prestação de serviços de qualidade para melhorar o desempenho acadêmico dos alunos.

Palavras-chave: *Ensino Superior. Resultados de Aprendizagem. Satisfação do Aluno. Qualidade do Serviço. Envolvimento dos Alunos.*

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1 INTRODUCTION

Higher Education (HE) is an important indicator of societal socioeconomic development (O'Leary & Wood, 2019). The major challenge HE faces today is the service delivery in teaching and general administration. HEs' competitive nature is similar to regular commercial enterprises that produce goods and services for customer satisfaction (Elumalai et al., 2021). Thus, the marketization of educational institutions on a global scale has increased the competition within the education sector (Findlay et al., 2017; Gallifa & Batallé, 2010; Pucciarelli & Kaplan, 2016; Walker, 2010), where public and private universities compete to attract students and academic staff. The drive for internationalization and ranking of learning institutions further triggered the need for perfect marketing strategies in this sector. Dollinger et al. (2018); Newman & Jahdi (2009); Tamrat & Teferra (2020) recognized the need for the marketization of educational institutions and highlighted that for the last two years, researchers have keenly focused on the marketization of these institutes. Educational institutions consider themselves as business and develop their own marketing strategies (Molesworth et al., 2009; Posselt et al., 2019; Voss et al., 2007). Moreover, educational organizations appears to be evolving from profit maximization to maximizing profits through better customer satisfaction (Jarrar & Schiuma, 2007; Özgener & Iraz, 2006; Sutin, 2018). Consequently, the institutions facing competitive pressures are forcing other educational organizations to evaluate the processes within their institutions and how their courses are delivered to their students (Kalaichelvi & Sankar, 2021; Seth et al., 2005). Effective and efficient Lectures and student assessments would build the institutions' competitive advantage.

The customer-focused approach has the potential to produce high student satisfaction (Hemsley-Brown et al., 2010; Mark, 2013), which contributes to students' retention and overall progression rates (Ackerman & Schibrowsky, 2007; DeShields et al., 2005). Moreover, this approach will benefit universities in their overall performance and income (Fugazzotto, 2012; Ryan & Ryan, 2002) and enhance student employability and the institution's reputation (Jancey & Burns, 2013). Therefore, several Higher Education Institutions (HEIs) are now focusing on Total Quality Management (TQM) to ensure continuous improvement in their educationl quality (Aly & Akpovi, 2001). These institutions recognize the significance of service quality practices, which are crucial for

to gain competitive advantage (Shahin & Samea, 2010). Seth et al. (2005) highlighted that service quality can be determined by analyzing the variance between expectations, performance, and quality dimensions. Nowadays, the biggest challenge faced by modern services industry is the delivery of the superior quality for enhancing customer satisfaction (Hung et al., 2003).

Service quality plays a vital role in achieving educational excellence in education and higher learning. The high perception of service quality leads to students' satisfaction that generates positive word-of-mouth (Alves & Raposo, 2010). Institutions' academic performance and administrative efficiency can motivate or inspire students. Ahmed et al. (2010) argued that service quality is a critical performance metric in educational excellence and a strategic factor for institutions to influence consumer perception. This research posits that the quality of higher education services can affect student satisfaction and learning outcomes.

Successful learning and learning outcomes are associated with various external factors, including the facilities provided by institutions, institutional support, and teacher competency (Keržič et al., 2021; Elumalai et al., 2021), but student engagement is the most important internal factor that enhances the academic performance of students (Rajabalee et al., (2020) and elevate their learning capabilities. Moreover, it is considered a critical factor in degree completion and academic achievement (Maroco et al., 2016; Tomaszewski et al., 2020; Reeve et al., 2020; Sukor et al., 2021). Nystrand and Gamoran (1992) defined student engagement as "students' willingness to participate in routine school activities, such as attending classes, submitting required work, and following teachers' directions in class" (p. 14). Over the last two decades, it has gained significant attention among practitioners, academicians, and researchers (e.g., Elliot & Tudge, 2012; Bear et al., 2018; Bond et al., 2020; Reschly & Christenson, 2022). However, most of the literature on student engagement originates from developed countries, including Australia and the United States, and the researchers have highlighted that besides enhancing academic performance, it can reduce burnout among students (Friedman, 2014; Weiss & García, 2015; Zabuska et al., 2018; Williams et al., 2019; Tomaszewski et al., 2020).

Many researchers have defined student engagement, but it is an ambitious concept as there are different forms of student involvement in learning (Balwant et al., 2019). Therefore, Balwant (2018) reviewed all these forms and defined student engagement as

“highly activated and pleasurable emotional, behavioural, and cognitive involvement in academic activities” (p. 7). Emotional engagement refers to students' engagement after experiencing pleasurable emotions and sentiments from the institution. The term "behavioural engagement" highlights the engagement of students with an institution due to their active participation, such as making additional efforts or exerting additional energy. Cognitive engagement refers to the engagement of students when they are captivated and focused on a particular module, such as when they are paying attention to the teacher or retaining their concentration on the lecture or class. All these three dimensions of student involvement are distinguished by a highly activated and optimistic state (Balwant, 2018). Sharif Nia et al. (2023) highlighted that it is essential to identify student engagement's influence on students' academic self-efficacy because both are antecedents of learning satisfaction. Student engagement is considered an antecedent of academic achievement. Moreover, many studies have empirically investigated the relationship between student engagement and academic achievement. However, the results are still inconsistent (Lei et al., 2018) and highlight the need to identify how student engagement can strengthen the relationship between student satisfaction and student learning outcomes. Therefore, this research has proposed that student engagement can moderate the relationship between student satisfaction and learning outcomes.

This research aimed to develop a comprehensive framework to understand the factors affecting learning outcomes of the students enrolled in Bahraini universities. This framework is developed within the context of the sustainable competitive advantage theory, which elucidates the strategic importance of service quality and competitiveness in satisfying and delighting student customers. By incorporating insights from various models, theories, and literature, this study has expanded the knowledge on service quality of higher educational institutions, and student satisfaction, engagement and learning outcomes.

2 LITERATURE REVIEW

In the current competitive academic environment, students have several alternative choices for various educational institutions. Therefore, the researchers should focus on factors that attract or retain students and can be used by educational institutions

(Pucciarelli & Kaplan, 2016). Based on the previous studies on service quality in education, more emphasis was given to the relationship between students' learning outcomes and consequences. For instance, Bae (2007) used the effect of ISO quality system adoption on learning outcomes in education. Others (Ardi et al., 2012; Purgailis & Zaksa, 2012; Quintal et al., 2012) focused on the consequence of service quality in higher education. Many studies on service quality and student satisfaction have focused on Sri Lanka (Kajenthiran & Karunanithy, 2015), Pakistan (Muhammed et al., 2010), Bangladesh (Asaduzzaman et al., 2013), and South Africa (Dirkse van Schalkwyk et al., 2021). These studies' results showed that service quality was positively related to student satisfaction in private universities and other HE institutes. However, a negative relationship between service quality and student satisfaction was also identified in several studies conducted in the UK (Douglas et al., 2006) and Vietnam (Tuan, 2012). This shows the contradiction between the regional studies.

Institutions need better service quality to achieve student satisfaction in a highly competitive market. Sustainable competitive advantage theory explains that firms aiming to win in a marketplace over their competitors must maintain certain unique practices or strategies that are difficult to copy over a long period (Barney & Arikan, 2008). Moreover, it is about the differentiation in product knowledge quality and technology (Belton, 2017; John et al., 2023) alongside how the organizations' activities are matched and integrated to deliver value (Ojo & Mbohwa, 2015). Therefore, sustainable competitive advantage is a mixture of organizational resources with these unique activities ahead of the rivals.

Educational institutions focus on developing sources of competitive advantage by securing customers and remaining competitive within the sector (Bowen & Fincher, 2019; Walker, 2010). While there are many sources of competitive advantage, service quality has become one of HE institutions' most significant sources (Gallifa & Batallé, 2010; Sankar et al., 2022). Thus, throughout the past two decades, service quality has emerged as a critical focus for practitioners, and researchers due to its significant influence on business performance (Brady et al., 2002), lower costs (Bell et al., 2005; Zeithaml, 2000), and customer satisfaction (Chumpitaz & Paparoidamis, 2004). The importance of service quality in all organizations, private or public, and manufacturing or services cannot be underestimated due to its role in corporate marketing and financial performance (Buttle, 1996; Yusoff et al., 2008). Many institutions now regard themselves as brands and

simultaneously compete for customers facing various choices (Cook, 2002). Hence, the main strategy suitable for the trending competition in the education sector is student-centric or customer-focused.

Numerous studies examining service marketing have proposed that students' satisfaction is influenced by their perceptions of the quality of higher education (Douglas et al., 2006; Helgesen & Nesset, 2007). Moreover, a fresh marketing perspective emphasizes the active involvement of students as co-creators of service value, aligning with theories pertaining to higher education (Nguyen et al., 2021; Sarasvuo et al., 2022). Therefore, the integreaton of literature and incorporation of different affective and cognitive learning outcomes (Terenzini, 1989), a unified framework can be developed that can provide a comprehensive and inclusive approach for understanding students' perspectives on their university experience.

2.1 Student learning outcomes

The evaluation of student learning outcomes is increasingly important in HE (Barber et al., 2015; Goldie, 2016; John et al., 2022; Terenzini, 1989). This is driven by various factors, including (i) the necessity for academic accountability to societies and governments, (ii) institutional, regional, or professional certification requirements, and (iii) internal practices for evaluating and improving departmental or institutional performance (Barkley & Major, 2016). Different assessment tools are utilized in combination to complement each other. These tools commonly include traditional grading of assignments, tracking alumni performance in the job market, and subjective approaches that can help in evaluating the feelings of students, as identified by Raaper (2019).

The student perceptions of the learning environment significantly influence learning outcomes more than their past academic achievement (Lizzio et al., 2002). Similarly, Sarıtepeci & Çakır (2015) emphasized that a blended learning environment significantly enhances overall academic achievement compared to face-to-face learning environments. The European Foundation for Quality Management, as cited by Ernest Osseo-Asare & Longbottom (2002), emphasized the importance for institutions to determine whether they effectively achieve students' learning outcomes, encompassing

value-added knowledge, skills, and personal development. Hyde (2022) provided a general definition by focusing on all the different classifications of learning outcomes. Moreover, they highlighted that cognitive learning outcomes pertain to students' attainment of particular information and competencies. In contrast, affective learning outcomes encompass the influence of the HE experience on students' values, goals, attitudes, self-concepts, worldviews, and behavior. Accoridingly, it is hypothesize that:

H1. Higher Education service quality will positively influence student learning outcomes.

2.2 Service Quality in Higher Education (HESQ)

The concept of service quality in HE can be defined as the perceived variance between a student's expectations and their actual experiences (O'Neill & Palmer, 2004). However, other scholars have emphasized that service quality in HE refers to the provision of intangible elements that satisfy and ideally add value to the consumers (Brysland & Curry, 2001; Cooper, 2015; Mazzawi & Alawamleh, 2019). As a result, there exist multiple definitions of service quality. Recognizing its significance in driving corporate marketing and financial performance (Buttle, 1996), service quality is crucial for all organizations. Moreover, service quality is considered a prerequisite for attracting students from around the world. Perez-Encinas & Rodriguez-Pomeda (2018) assert that the expectation of service quality significantly influences students' decisions to study abroad.

The literature on service quality in the context of higher education primarily focuses on organizational endeavors to develop and implement innovative academic programs (Asilestari, 2018; Becket & Brookes, 2008; Harvey, 2005). These efforts have fostered enhancements in the provision of services to student customers (DeShields et al., 2005; Joseph et al., 2005) and discussions regarding the parameters defining service quality in terms of course offerings and teaching methodologies (Islam et al., 2022; Oldfield & Baron, 2000). The educational literature underscores the importance of educational institutions actively monitoring the quality of their services (Caruana, 2002; Gupta & Kaushik, 2018) and striving for continuous improvements (O'Neill & Palmer, 2004) to thrive in the competitive landscape of attracting more students and generating

revenue (Dorweiler & Yakhou, 1994). In this highly competitive environment, students are increasingly discerning and well-informed about the service quality offered by different academic institutions. Consequently, it can be argued that service quality significantly influences a student's choice of university or higher learning institution. Therefore, it is hypothesized that:

H2. Higher Education service quality positively influences student satisfaction.

2.3 Student learning outcomes and student satisfaction

The assessment of performance has been recognized as a crucial aspect of educational quality (Jackson et al., 2016; Koslowski, 2006). In HE, student learning is evaluated through performance evaluation, which improves the quality of HE (Cardoso et al., 2015; Gardiner, 2002). Cognitive learning outcomes can be assessed by particular academic accomplishments delineated by the educational program or institution (York et al., 2015). Terenzini et al. (2001) performed a factor analysis on the reported enhancements by engineering students and discovered three key learning outcomes: collaborative skills, analytical problem-solving abilities, and occupational awareness. Thus, cognitive effects can be evaluated at both a specific and a general level.

DeShields et al. (2005) discovered that the partial college experience influences the satisfaction level of business students. This partial college experience includes cognitive development (personal learning, problem-solving abilities), career advancement (students' perception of the program's contribution to their career objectives), and the enhancement of business competencies. Education extends beyond the mere acquisition of facts and skills (cognitive outcomes) and encompasses effective learning, which involves understanding how the world operates and constructing a worldview that guides behavior and influences how individuals acquire and utilize knowledge (Duque & Weeks, 2010). Accordingly, it is hypothesized that:

H3. Student satisfaction will positively influence student learning outcomes.

2.4 Student satisfaction as mediating variables

Lindner et al. (2017) and Terenzini (1989) emphasized the importance of re-evaluating the fundamental purposes of assessment in conjunction with the expected outcomes of both academic and non-academic aspects of higher education. Elliott & Shin (2002) defined student satisfaction as the positive evaluation made by students regarding the various outcomes and experiences associated with their education. Furthermore, Annamdevula & Bellamkonda (2016) stated that satisfaction plays a role in fostering loyalty toward the services provided by HEIs.

The satisfaction of students is continuously influenced by their repeated experiences in campus life (Wong & Chapman, 2022). Therefore, achieving a high level of service quality (Annamdevula & Bellamkonda, 2016; Athiyaman, 1997; Kilburn et al., 2014) can lead to student loyalty. This study offers a critical perspective, suggesting that good service quality can provide a competitive advantage to organizations by safeguarding their customers from competitors (Bresler et al., 2002; Guerola-Navarro et al., 2021). Consistent with theoretical viewpoints, it is argued that student loyalty directly stems from good service quality (Brown & Mazzarol, 2009) and, in turn, is influenced by the achievement of student learning outcomes (Duque & Weeks, 2010). Therefore, examining the relationship between HE service quality, student learning outcomes, and student satisfaction is necessary. Therefore, it is hypothesized that:

H4. The relationship between higher education service quality and student learning outcomes is mediated by student satisfaction.

2.5 Student engagement as a moderator

Student engagement or involvement has been a topic of discussion for several decades (Ko et al., 2016). The engagement of students in course activities leads to academic learning outcomes. Moreover, the out-of-class engagement enables the students to gain practical skills (Zilvinskis et al., 2017). Students with low socio-economic status have low cognitive and behavioural engagement levels. In addition, they have low levels of academic achievement (Tomaszewski et al., 2020). Therefore, it is important to

determine how student engagement can enhance academic performance or learning outcomes.

Many researchers highlighted the positive relationship between student engagement and academic achievement or learning outcomes. However, some studies have challenged this view because, with the same level of satisfaction, students' engagement may vary (Baloran et al., 2021). Vîrgă et al. (2020) reported a significant association between student engagement and academic performance. Whereas Baloran et al. (2021) argued that instead of agentic and behavioural engagement, cognitive and emotional engagement can effectively predict better learning outcomes. Moreover, Lei et al. (2018) highlighted that students' academic achievement is linked to student engagement, but this relationship can be moderated by the method of reporting engagement. In higher educational institutions, student engagement is considered a significant concept that highlights that social and academic orientations can improve student outcomes (Öz & Boyacı, 2021). Furthermore, it can be beneficial for institutions to determine how the engagement of students can lead to better learning outcomes (Zilvinskis et al., 2017). Therefore, this research considered student engagement as a moderator in the relationship between student satisfaction and student learning outcomes. To determine this relationship, the following hypothesis is developed:

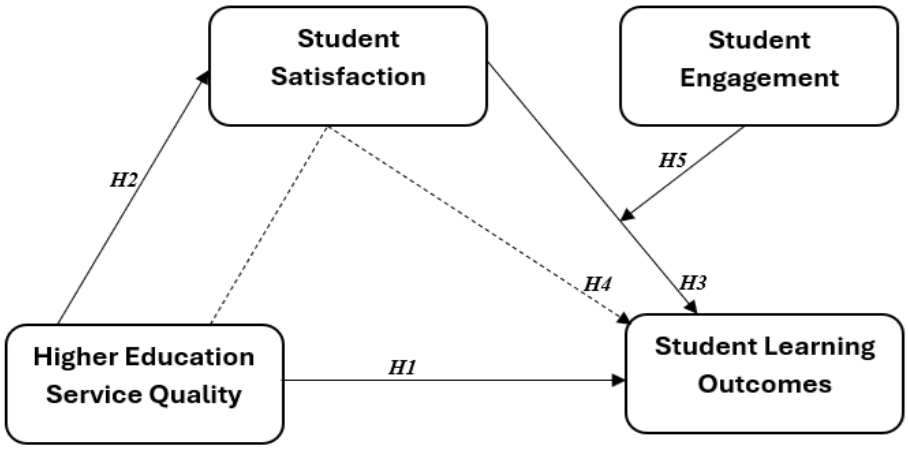
H5. Student engagement moderates the relationship between student satisfaction and student learning outcomes.

2.6 Study theoretical framework

Figure 1 illustrates the research framework focused on mediating student satisfaction between HE service quality and student learning outcomes. Moreover, it presents the moderating role of student engagement in the relationship between student satisfaction and student learning outcomes. This study is unique as it explores the new relationship between student satisfaction with service quality and student learning outcomes. The framework investigates the direct effects of antecedents, namely service quality, student learning outcomes, and the mediating effects of student satisfaction. The study aims to determine the positive impact of student satisfaction on student learning outcomes. Each connecting line in Figure 1 represents a hypothesized relationship

between specific constructs. While Tan (2017) found no significant relationship between market-oriented service quality, experience, student satisfaction, and learning outcomes in Singapore, this research complements Tan's study by focusing on student satisfaction as a mediator between service quality and learning outcomes. Tan's findings highlighted the lack of consistency in previous studies on service quality in HE. Additionally, previous evidence indicates that students seek quality education and recognized certificates. Therefore, the current study's framework examines the role of service quality in students' learning outcomes, mediated by student satisfaction, in Bahraini private universities.

Figure 1. Theoretical framework



Source: Figure by authors based on the review of literature

One mediating variable employed in this study was student satisfaction. Moreover, student engagement was considered as a moderator between student satisfaction and student learning outcomes. In addition, HE service quality is considered an independent variable, whereas student learning outcome is a dependent variable.

3 RESEARCH METHODOLOGY

The research design establishes principles to help researchers understand the problem being studied (Patten, 2016). This research has employed a quantitative survey

approach for gathering data from a sample of students attending private universities in Bahrain. The selection of participants for the study followed the description provided by Stevens & Jouny-Rivier (2020), which involves identifying elements from the population from which the sample will be drawn. Due to the lack of complete lists or records of all aspects of the survey population, the study focused on students enrolled in private higher educational institutions (PHEIs) as the sample unit. In Bahrain, there are 11 PHEIs (HEC, 2012). The sample size was determined based on desired power levels, effect sizes, significance, and the number of latent variables and indicators per latent variable (J. Cohen, 1988; Costello & Osborne, 2005). Accordingly, the target sample size for this study was set at 60 participants.

A proportionate sample technique was utilized to distribute the questionnaire, ensuring that each university received 14 samples. A total of 154 questionnaires were distributed, resulting in 89 usable questionnaires and a response rate of 59.3%. Data collection was conducted using a closed-ended questionnaire administered online via Google-based platforms and through shared hard copies.

The data analysis process consisted of two stages: preliminary analysis and final analysis. In the initial investigation, reliability and descriptive analyses were performed using SPSS (Khaleel et al., 2017). The final analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM), chosen for its ability to conduct model fit tests (Henseler et al., 2014), suitability for model estimation (Rigdon, 2012), and previous usage in marketing research (Johnson et al., 2006). To ensure the internal consistency of the study's latent variables, Cronbach's Alpha statistics, discriminant validity, and composite reliability tests were conducted. Hypothesis testing utilized f2 beta coefficients, as Henseler & Fassott (2010) recommended.

The measurement items for Higher Education Service Quality (HESQ) were adapted from Asaduzzaman et al. (2013); Sahney et al. (2004). Student satisfaction items were adapted from Al-Sheeb et al. (2018), encompassing four dimensions: understanding (2 items), non-academic (2 items), academic (2 items), and reputation access program (1 item). 15 items based scale of student engagement was adopted from Maroco et al., (2016). The measurement items for student learning outcomes were adapted from Chen et al. (2016). All the items were rated on a 5-point Likert scale.

3.1 Demographic profiles

In the initial data analysis, less than 5% of the values were found to be missing at random during testing. To address this issue, the mean replacement method was used to remedy the missing values, as suggested by Cohen et al. (2014) and Saunders et al. (2016). Subsequently, the demographic characteristics of the data were assessed. Upon analyzing the socio-demographic profile of the respondents, it was found that 67.4% were male, while 32.6% were female. Regarding age distribution, most respondents fell within the 35 to 40 years old bracket, accounting for 36% of the total population (refer to Table 1). The lowest representation was observed among respondents aged 20 to 25 and those above 40, each comprising 9% of the total population (89 participants). Regarding educational attainment, most of the 89 participants were university postgraduate students (n=54), with the remaining 35 undergraduates (n=35). Regarding origin, the highest proportion of respondents were students from domestic private universities (85), while the remaining four were from international private universities.

Table1. Demographic details of the respondents

Description	Frequency	Percent
Gender		
Male	60	67.40
Female	29	32.60
Total	**89**	**100.00**
Age		
20-25 year	8	9.00
26-30 years	23	25.80
31-35 years	18	20.20
35-40 years	32	36.00
40 years and above	8	9.00
Total	**89**	**100.00**
Level of study		
University Undergraduate Degree	35	39.30
University Postgraduate Degree	54	60.70
Total	**89**	**100.00**
Origin of respondent		
Domestic	85	95.55
International	4	4.50
Total	**89**	**100.00**

Source: Table by authors based on collected data through a questionnaire

In addition, a systematic analysis was conducted to identify outliers and multicollinearity within the data. The examination revealed the absence of any outliers,

and there were no indications suggesting the existence of multicollinearity, as evidenced by the variance inflated factor and tolerance values.

4 STRUCTURE MEASUREMENT MODEL

The reflective measurement model underwent a systematic evaluation, considering indicators, internal consistency reliabilities, and convergent and discriminant validity. Hair et al. (2010) highlighted that individual item loadings for these measurement models are expected to exceed 0.7; however, a threshold of 0.4 (refer to Table 2) is also considered acceptable (Hulland, 1999). Therefore, the items having values below this threshold were removed (i.e., SS1= 0.129, SE12= 0.163, SE13= 0.078, SE14= 0.192, SE15= 0.279). Furthermore, to assess internal consistency, a composite reliability value greater than 0.70 is recommended for each latent construct (Hair et al., 2022). Interestingly, all constructs in our study exhibited composite reliability values above 0.7 (refer to Table 3 and figure 2).

Table 2: Loading and Cross Loadings

Constructs	Items	Loadings
Student Learning Outcome	SLO1	0.815
	SLO2	0.809
	SLO3	0.820
	SLO4	0.849
	SLO5	0.749
	SLO6	0.776
Student Satisfaction	SS2	0.869
	SS3	0.857
	SS4	0.869
Higher Education Service Quality	HESQ1	0.822
	HESQ2	0.817
	HESQ3	0.799
	HESQ4	0.785
	HESQ5	0.744
	HESQ6	0.791
Student Engagement	SE1	0.785
	SE2	0.782
	SE3	0.732
	SE4	0.758
	SE5	0.796
	SE6	0.611
	SE7	0.712
	SE8	0.797
	SE9	0.757
	SE10	0.749

	SE11	0.737

Source: Table by authors based on collected data through a questionnaire

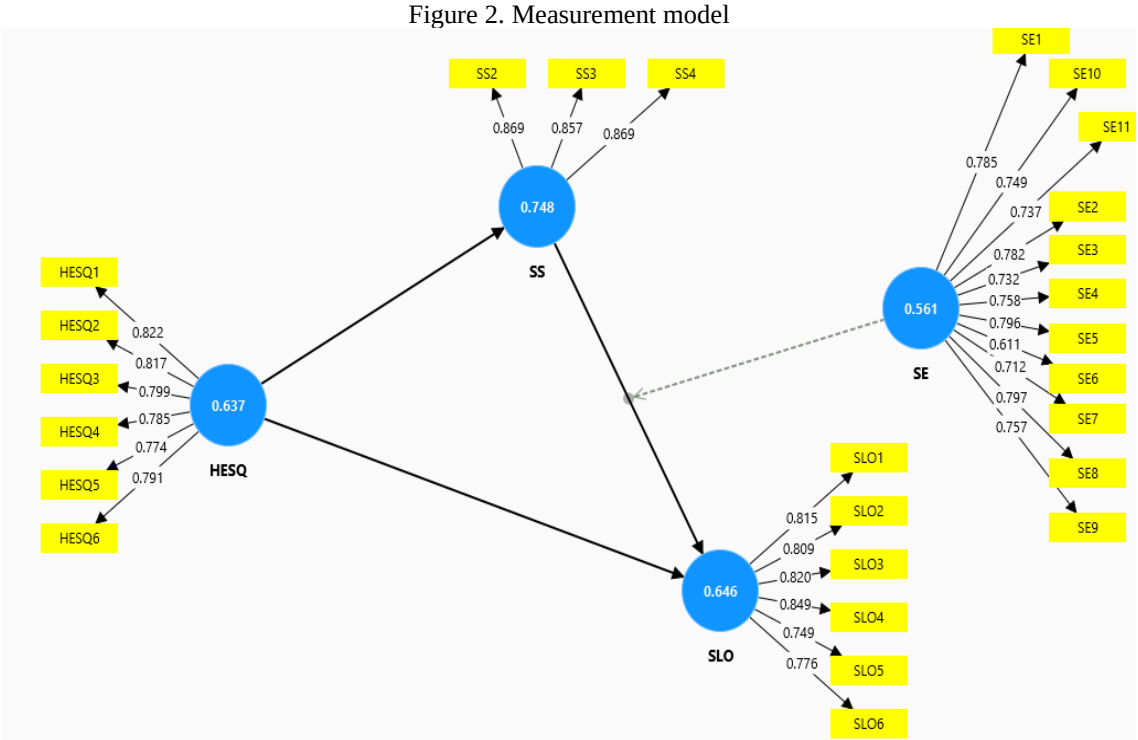
Convergent validity was assessed using the average variance extracted (AVE) measure. To meet the criterion for convergent validity, the AVE benchmark for each latent construct needed to be greater than 0.5 (Fornell & Larcker, 1981; J. F. Hair et al., 2022). The AVE values exceeding this benchmark for all latent variables are presented in Table 3. Discriminant validity was evaluated by comparing the square root of the AVE with the inter-construct correlation, following the criteria set by Fornell & Larcker (1981). For discriminant validity to be established, the correlation between constructs should be lower than the square root of the AVE (Chin et al., 1998). According to Table 3, this condition was satisfied.

Table 3: Discriminant Validity and Internal Consistency Reliability

Variables	*HESQ*	*SE*	*SLO*	*SS*	AVE	CR
HESQ	0.798				0.637	0.890
SE	0.462	0.749			0.561	0.925
SLO	0.828	0.482	0.804		0.646	0.893
SS	0.892	0.426	0.796	0.865	0.748	0.832

Source: Table by authors based on collected data through a questionnaire

Figure 2. Measurement model

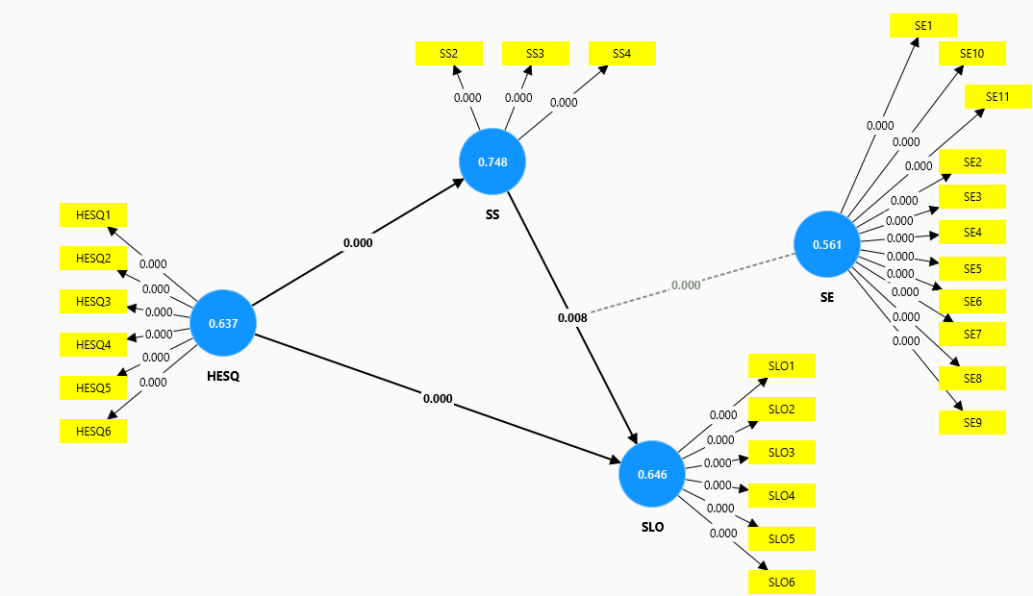


Source: Figure by authors based on collected data through a questionnaire

4.1 The structure model

In the first stage of analysis via Smartpls 4, the measurement model was examined. In the second stage, we estimated the structural model to check the hypotheses. The structural model was evaluated by employing a boostrapping technique with 5000 subsamples based on recommendations of Hair et al., (2021). The outcomes are reported in the figure 3. Moreover, the coefficient of determination of the endogenous variable in the model was evaluated. Cohen (1988) suggested three levels of structural model quality: substantial (0.26), moderate (0.13), and weak (0.02). Using the standard PLS algorithm, the measurement model for this study was assessed. In Figure 2, the R2 values for student satisfaction and learning outcome were 0.792 and 0.721, respectively, which were considered satisfactory, according to Falk & Miller (1992). These values fell within the moderate and substantial ranges defined by Cohen (1988).

Figure 3. Structural model



Source: Figure by authors based on collected data through a questionnaire

Figure 3 and Table 4 show the results of direct paths. The first hypothesis (i.e., H1) was developed to determine the positive relationship between HESQ and SLO. The results found a positive relationship between HESQ and SLO (β= 0.516, t= 4.999, p-value= 0.000); thus, hypothesis H1 has been accepted. The second hypothesis (H2) predicted the linkage between HESQ and SS. The results found a satistically significant

and positive relationship between HESQ and SS (β= 0.890, t= 59.003, p-value= 0.000); thus, hypothesis H2 has been accepted. Further, H3 aimed to investigate the relationship between SS and SLO. The results revealed a positive association between SS and SLO (β= 0.266, t= 2.652, p-value= 0.008); thus, hypothesis H3 has been accepted.

Table 4: Summary of Hypothesis Testing

Direct (without a mediator)	Path Coefficients	Std Error	T Value	P Value	Hypothesis
Higher Education Service Quality -> Student Learning Outcome (H1)	0.516	0.103	4.999	0.000	Supported
Higher Education Service Quality -> Student satisfaction (H2)	0.890	0.015	59.003	0.000	Supported
Student satisfaction -> Student Learning Outcome (H3)	0.266	0.100	2.652	0.008	Supported

Source: Table by authors based on collected data through a questionnaire

4.2 Mediation analysis

Hair et al. (2017) mentioned that a mediator is an additional variable inserted between the independent and dependent variables to investigate the causal relationship. When a mediator is introduced into the equation, it can influence the impact of the independent variable on the dependent variable through its mediating effect. In the Partial Least Squares Structural Equation Modeling (PLS-SEM) context, mediation effects are analyzed using the bootstrapping technique and a two-tailed test. Zhao et al. (2010) outlined the following steps for examining mediation effects:

1. First, a direct effect (c) is assessed between the independent and dependent variables without the mediator. The path coefficient must be statistically significant.
2. Next, the mediator variable is introduced, and the indirect effect is evaluated using the bootstrapping technique (a*b). The effect of the independent variable on the dependent variable is examined after incorporating the mediator (c'). If c' equals zero, it indicates a full mediating effect. However, if c' is not equal to zero, it suggests a partial mediating effect.

In this study, the indirect effects demonstrate how higher education service quality acts as a mediator by influencing student learning outcomes, which impacts student

satisfaction. The results of the mediation analysis, presented in Table 5, provide evidence of a significant mediating role of student satisfaction.

Table 5. Results of Mediation

Hypothesis	Direct Effect (Pathc')	Std Error	T-value	Indirect Effect (a*b)	Std Error	T-value	95% Lower Limit	95% Upper Limit	Results
Higher Education Service Quality->Student Satisfaction->Student Learning Outcome	0.516	0.103	4.999	0.237	0.087	2.721	0.043	0.381	Partial Mediation

Source: Table by authors based on collected data through a questionnaire

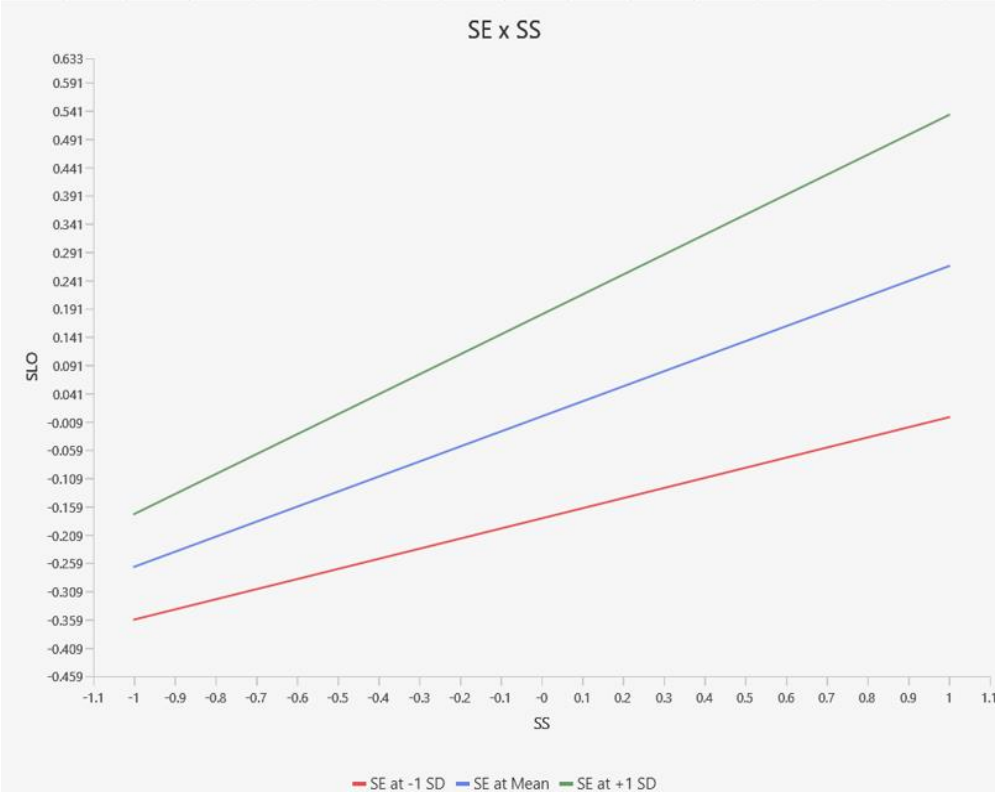
In hypothesis 4, the role of SS as an intervening variable was tested. The hypothesis tested how HESQ could influence SS, indirectly influencing SLO via SS. Table 5 presents the results of the bootstrapping analysis, which examined the indirect relationship. The significant beta (ß) value of 0.237, with a t-statistic of 2.721, indicates the presence of a mediation effect. The direct relationship's beta (ß) value is higher than the indirect beta (ß) value, supporting a significant mediating effect. Therefore, it can be concluded that the mediation effect is significant, confirming hypothesis H4. Table 6 and Figure 4 show the results of the moderation analysis (i.e., moderation of SE between SS and SLO. The results highlighted that student engagement significantly moderates the relationship between student satisfaction and student learning outcomes (β= 0.069, t= 2.312, p-value= 0.021). Thus, H5 was supported.

Table 6: Moderation Analysis

Direct (without a mediator)	Path Coefficients	Std Error	T Value	P Value	Hypothesis
Student Engagement*Student Satisfaction-> Student Learning Outcome (H5)	0.087	0.019	4.606	0.000	Supported

Source: Table by authors

Figure 4: Slope Diagram of Moderation (i.e., Student Engagement)



Source: by authors

Assessing SLO has become increasingly important in higher education (HE) environments. Performance assessment is used to evaluate student learning and improve the quality of HE. Consequently, it is considered a direct factor influencing SLO. However, the relationship between HESQ and SLO has been relatively unexplored. Notably, student satisfaction was proposed as an intervening variable in this study's context. Hypotheses regarding the direct and indirect relationships were formulated and tested, and all the direct and indirect hypotheses were supported. Consequently, the findings suggest incorporating SS as an intervening variable enhances understanding of the relationship between HESQ and SLO. Furthermore, the moderation hypothesis (i.e., H5) was supported as SE strengthens the relationship between SS and SLO.

Based on the theoretical framework (Figure 1), previous research has demonstrated a positive relationship between service quality in higher education and student learning outcomes (DeShields et al., 2005; Lizzio et al., 2002; Peterson & Einarson, 2001; Terenzini, 1989; Thomas & Galambos, 2004). Furthermore, there is evidence supporting a positive relationship between service quality in HE and student

satisfaction (Caruana, 2002; DeShields et al., 2005; Golmohammadi & Jahandideh, 2010; Narasimhan, 2005; Oldfield & Baron, 2000). Additionally, SS has been identified as a mediating variable between HESQ and SLO. This relationship also exhibits a positive association with student loyalty. Hence, SS can mediate the relationship between HESQ and SLO (Bitner, 1995; De Ruyter et al., 1998; Oldfield & Baron, 2000; Zeithaml, 2000). Furthermore, SE can significantly influence student academic achievements (Lei et al., 2018) and improve learning outcomes (Zilvinskis et al., 2017; Öz & Boyacı, 2021). The satisfaction level of each student is different, but if students are engaged, they can produce better learning outcomes. Therefore, this model effectively improves student learning outcomes by focusing on HE service quality. The results confirm the mediating role of SS between HESQ and SLO, establishing service quality as a crucial factor influencing SS. In addition, the findings indicated that SE can strengthen the positive relationship between SS and SLO.

5 DISCUSSION

This research is innovative in its creation of a comprehensive model that examines the determinants of service quality. Many prior studies have examined service quality in the higher education sector globally, but this study focuses on Bahrain universities, which still face quality issues in their higher education system. The researchers used a questionnaire to measure service quality, student satisfaction, and student learning outcomes. The study found that SS is a mediator between service quality and student learning outcomes, consistent with previous literature (Mosahab et al., 2010; Quintal et al., 2012; Yanova, 2015). Moreover, the findings revealed a significant moderating role of SE in the relationship between SS and SLO.

In terms of academic theory, this research contributes by developing a theoretical framework that identifies variables related to the quality of services in Bahrain universities. This methodological contribution enhances existing research on service quality measurement. The researchers tested and validated the model using data from across Bahrain, thereby adding to the existing body of knowledge in the field. The study also explores the mediating role of student satisfaction between service quality and student learning outcomes, supporting the notion that student satisfaction plays a crucial

role in this relationship. Service quality is recognized as an important factor influencing student satisfaction. Furthermore, student engagement was found to be a moderator in the relationship between student satisfaction and learning outcomes. In the classroom, the satisfaction level of each student is different; thus, to enhance the learning outcomes, it is essential to focus on the engagement of students. The variables derived from this research enhance our understanding of how these constructs broadly impact the future of higher education services (Napitupulu et al., 2018).

6 IMPLICATIONS

Implications derived from this extensive literature analysis and empirical investigation have significant academic, theoretical, practical, and methodological implications. The methodological contribution of this research lies in developing and testing constructs for each variable under consideration. A comprehensive questionnaire was devised to incorporate useful items from previous studies. While prior research studies often adopted or replicated the entire questionnaire, this research stands out by creating a refined questionnaire using existing items. This empirical study offers a valuable resource for future researchers who can employ the same adopted scale for their measurements. Investigating student learning outcomes, which various factors influence, presents its challenges. However, this study sheds light on some factors, including higher education service quality, student engagement and student satisfaction.

Consequently, student advisors, student affairs directors, university administrators, teachers, and even university owners/vice chancellors can use this research to understand the factors affecting student learning outcomes. Researchers can also refer to this study to discuss student learning outcomes, student satisfaction, and higher education service quality. Theoretical implications of this research involve expanding the limited knowledge surrounding factors that impact student learning outcomes. While it is challenging to pinpoint specific aspects, this study highlights potential factors and examines their relationships. As a result, this research directs attention toward developing an optimal framework for evaluating student learning outcomes. Distinguishing from other studies in the same domain that focus solely on

student satisfaction or service quality, this research combines these concepts by considering the perspective of service quality in higher education.

Subsequently, it contributes extensively to the literature on higher education, service quality, student satisfaction, and student learning outcomes. University administrators, teachers, and student affairs directors can benefit from understanding student satisfaction and higher education quality's crucial role in enhancing student learning outcomes. Furthermore, the marketing division of universities can adopt this research as a policy to improve student satisfaction, engagement and retention. In addition, the findings of this research can act as guidance for university administrators to enhance students' learning outcomes. They can improve students' learning outcomes by focusing on higher educational service quality, student satisfaction, and student engagement.

6.1 Limitations and future research

This research has presented a comprehensive model but also identifies several limitations that open up avenues for future work. Firstly, the study solely focused on higher educational institutions in Bahrain, collecting data from respondents at a specific time. However, students' beliefs and learning approaches may differ and evolve. Additionally, the influence of certain factors may vary across different periods. Future research could incorporate large sample sizes or use longitudinal data. Secondly, the study has gathered data from students enrolled at universities. It would be insightful for future studies to consider prospective students' opinions before joining the institution based on information passed on by students who have already completed their courses. Thirdly, while the study focused on student satisfaction with service quality as a significant antecedent, it is important to identify other variables that contribute to overall student satisfaction. Exploring factors such as institutional value, image, or reputation directly impacting student learning outcomes would be crucial for a more comprehensive understanding. Moreover, future studies could enhance the model's comprehensiveness by examining the relationship between student learning outcomes and student retention, thus extending its relevance to universities. Lastly, this research primarily concentrated on private universities in Bahrain, thus limiting the generalizability of the findings. To

address this limitation, it is recommended that future studies should focus on other higher educational institutions or public universities for further research.

7 CONCLUSION

In conclusion, this research investigated the correlation between service quality and learning outcomes in higher education, with the mediation of students' satisfaction. The findings confirmed previous studies' results on service quality in higher education, highlighting the significance of service quality in enhancing student learning outcomes at Bahrain Private University. Furthermore, the results found that student engagement significantly moderates the relationship between student satisfaction and learning outcomes. By employing a combined model that incorporated service quality and student satisfaction as mediators, this study established a groundwork for future research in higher education, particularly in assessing learning outcomes. In addition, the study proposed a standard for policy implementation to the Bahraini Higher Education Commission and the government, aiming to improve service quality and enhance the competitiveness of Bahraini universities in the Middle East region. This, in turn, could attract more student enrollments and facilitate the recruitment of talented lecturers, leading to increased scholarly activities and potentially improving the global ranking of Bahraini universities. Ultimately, graduates from these universities would possess the skills and capabilities to compete in the global job market, making them valuable assets capable of contributing anywhere in the world.

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ETHICAL STATEMENT

Ethical approval for this study was obtained from the Ethics Committee of the Research Centre at the university. The study adhered to the ethical principles Informed Consent

Guidelines of the University. The study exclusively involved data collection from students enrolled in private higher educational institutes. Prior to their participation, all individuals were furnished with a comprehensive information sheet that outlined the purpose and details of the research. Participation in the study was entirely voluntary, and individuals were asked to complete the questionnaire only after they had thoroughly reviewed the information sheet and had any questions or concerns addressed. We stress the importance of informed consent, ensuring that all participants were fully aware of the study's objectives and their voluntary role in contributing to this research. All participants were exclusively students above 18 years from private universities.

INFORMED CONSENT

This study employed a written informed consent form, included at the beginning of the questionnaire, which all participants signed. Participants were exclusively Students from private universities in Bahrain. Before participating, each individual received a comprehensive information sheet detailing the research purpose and methods. Participation was entirely voluntary, and individuals were asked to complete the questionnaire only after carefully reviewing the information sheet and having any questions or concerns addressed. This process ensured informed consent, guaranteeing that all participants fully understood the study's objectives and their voluntary contribution to the research.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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