Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2020.vol7.no9.439

A Study on the Effects of Business Service Quality on Satisfaction, Commitment, Performance, and Loyalty at a Private University

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Received: June 29, 2020 Revised: July 27, 2020 Accepted: August 10, 2020

Abstract

The purpose of this study is to investigate the impacts of business service quality on satisfaction, commitment, performance, and loyalty in higher education. A survey was given to undergraduates involved in business through employment and start-up companies at a private university in Korea. With 252 respondents, this study used exploratory factor analysis and reliability analysis to verify the reliability and validity of measured variables. Multiple regression was employed as a statistical method for the hypotheses of the study. The research questions were: 1) How do education SERVQUAL factors (tangibles, responsiveness, reliability, assurance, and empathy) affect customer satisfaction? 2) How do education SERVQUAL factors affect customer commitment? 3) How does customer satisfaction or commitment affect education performance? 4) How does customer satisfaction, commitment or performance affect their loyalty in higher education? The findings show that most dimensions of business service quality have effects on satisfaction and commitment, and satisfaction and commitment have a positive effect on performance. Additionally, satisfaction, commitment and performance all have an effect on loyalty. This study confirmed the need for the improvement of business service quality in a private university. Additionally, it highlighted the importance of user satisfaction, commitment and performance in order to increase the loyalty level of undergraduate students.

Keywords: Business Service Quality, Satisfaction, Commitment, Performance, Loyalty, Private University, Korea

JEL Classification Code: A22 I21 I23 M31

1. Introduction

Service quality is defined as the ability of an organization to meet or exceed customer expectations (Parasuraman, Zeithaml, & Berry, 1985). Empirical research measuring service quality has been conducted within various social science disciplines in the fields of business administration and marketing. Private educational facilities can also be viewed from a marketing perspective in terms of a customer relationship. A private university's business success can be affected by the quality of its educational services, which also affects customer satisfaction.

In the context of higher education, a common belief is that universities that provide strong employment opportunities for graduates are top universities. This has emerged as an important success factor for private universities. With this in mind, private institutes of higher learning are interested in creating business related services that can contribute to creative thinking and can help students obtain the knowledge and skills needed for employment. A private university's educational service is an important business that enables students, who are the consumers, to realize material and mental satisfaction, and to contribute to maximizing their achievement.

The quality of educational business services has been studied based on SERVQUAL as suggested by Parasuraman, Zeithaml, and Berry (1985, 1988). Service quality has been increasingly recognized as a critical factor in the success of any experiential education (Park & Kim, 2012). The service quality in the field of education and higher learning particularly is not only essential and important, but it is also an important parameter of business excellence (Azam, 2018). Private Korean universities are striving to provide excellent business service quality in order to realize the ultimate goal of

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fostering talented professionals. In addition, they are actively interested in helping students find meaningful employment by providing courses related to careers, business, and start-ups.

The topic of measuring service quality has been studied widely in the past few decades (Kahlah, Amina, & Kahlah, 2012). So far, studies on the application of service quality have mainly focused on business research and marketing. However, there have been several studies on service quality applied to higher education. These studies used business service quality as an important independent variable for the success of educational institutions (Abu Hasan, Ilia's, Abd Rahman, & Abd Razak, 2008; Al-Alek & Lamasery, 2012; Azam, 2018; Eres & Clothe, 2013; Kahlah, Amina, & Kahlah, 2012; Khodadadi & Khodadadi, 2011; Prentice, McLaughlin, & Brady, 2018; Yousapronpaiboon, 2014).

Today, universities are highly interested in employment, start-up, and business-related education services as a way to help students develop convergence knowledge to prepare for the fourth industrial revolution and overcome the current employment problems. Private universities are even more desperate to utilize these programs. These practical education courses are based on business subjects such as economics, accounting, finance, and distribution. They also include courses that can help students learn about start-ups and find employment after graduation.

This study was conducted with the goal of changing the needs of private universities, while recognizing the importance of implementing excellent service quality and maximizing student satisfaction. This study aims to identify the impact of important variables on service quality. The purpose of this research is to analyze the impacts that service quality has on satisfaction, commitment, performance, and loyalty for students at a private university in Korea. Surveys were conducted to identify the following research questions: 1) How do education SERVQUAL factors (tangibles, responsiveness, reliability, assurance, and empathy) affect customer satisfaction? 2) How do education SERVQUAL factors affect customer commitment? 3) How does customer satisfaction or commitment affect education performance? 4) How does customer satisfaction, commitment or performance affect their loyalty in higher education?

2. Theoretical Background

2.1. Service Quality

According to Parasuraman, Zeithaml, and Berry (1985), the term 'service quality' was described as the ability of an organization to meet or exceed customer expectations. They identified the first 10 determinants (Tangibles, Reliability, Responsiveness, Competence, Access, Courtesy, Credibility,

Security, Communication and Understanding) of service quality that could be generalized to any type of service. And then Parasuraman, Zeithaml, and Berry (1988) regrouped the well-known 5 dimensions of the SERVQUAL model and cataloged 22 items by Tangibles, Assurance, Empathy, Reliability and Responsiveness. Cronin and Taylor (1992), of course, proposed measuring Performance only without Expectation as a service quality, and suggested that SERPERF would be more effective, but SERVQUAL must still be a widely used measure.

From this point of view, many studies have used Parasuraman, Zeithaml, and Berry's SERVQUAL model to assess service quality in educational institutions. In a study with undergraduates in Iran, Khodayari and Khodayari (2011) examined a gap between Expectations and perceptions among the dimensions of the SERVQUAL, and showed that Reliability, Tangibility, Responsiveness, Assurance and Empathy were important for customers. Al-Alak and Alnaser (2012) examined the relationship between SERVQUAL dimensions (Tangibles, Responsiveness, Reliability, Assurance and Empathy) and overall service quality satisfaction for undergraduate students in the Faculty of Business at the University of Jordan. Their results indicated that the Assurance and Reliability dimensions of service quality were the two most important for improvement.

Akhlaghi, Amini, and Akhlaghi (2012) found that in the case of technical and vocational colleges, there are quality gaps in all five SERVQUAL dimensions; the largest gap is for Responsiveness and the smallest gap is for Reliability. Yousapronpaiboon (2014), in a study with undergraduates from a private university in Thailand, found that in all 5 dimensions of SERVQUAL, a gap was observed between undergraduates' perceptions and expectations. In this case, higher education did not meet the expectations of these undergraduates.

This SERVQUAL model is one of the most commonly used models for evaluating expectations and perceptions of service quality (Azam, 2018; Seng & Ling, 2013; Yousapronpaiboon, 2014). These 5 dimensions are identified as follows:

First, Tangibles refers to the appearance of physical facilities, equipment, personnel and communication materials.

Second, Responsiveness refers to the willingness to help customers and to provide prompt service.

Third, Reliability refers to the ability to perform the promised service dependably and accurately.

Fourth, Assurance refers to the knowledge, courtesy of employees and ability to convey trust and confidence in the customer towards the service provider.

Fifth, Empathy refers to the provision of caring, individualized attention provided to customers.

2.2. Satisfaction

Satisfaction has been defined as a psychological state after experiencing products and services of enterprise with static and continuous emotions (Oliver, 1980). The concept of Satisfaction has been approached primarily in the marketing field in the sense of customer satisfaction, and the definition of customer satisfaction and factors affecting Satisfaction have been studied in a number of works of literature (Lee, Jung, & Seong, 2019).

According to Kotler, Armstrong, and Wong (2000), customer satisfaction was defined as a person's feelings of pleasure or disappointment resulting from comparing a product or perceived performance in relation to expectations. From a similar perspective, many studies have investigated Satisfaction as a leading factor to forecast a customer's future behavioral intentions (Koo, 2005; Kwon & Yu, 2014; Lee & Bea, 2006; Lee, Jung, & Seong, 2019; Lee & Lee, 2018; Sung, Kim, & Youn, 2014).

From a higher education perspective, satisfaction is shaped by students' expectations. Elliott and Shin (2002) expressed that student satisfaction is continually shaped by various outcomes and their experiences on campus. From a similar view, in cases of private universities in Albania, Coscun (2014) investigated essential factors on student satisfaction. Richardson (2005) uses various dimensions to measure the quality of the educational environment and satisfaction. These dimensions included student evaluation of teaching, course modules, perceptions of academic quality and satisfaction.

2.3. Commitment

The concept of Commitment appears in the field of organizational psychology and has mainly been studied in the workplace. It has thus become a very fashionable term in recent years in the field of business and has been highlighted in the academic realm (Rodríguez-Izquierdo, 2020). Accordingly, Schaufeli, Martínez, Pinto, Salanova, and Bakker (2002) defined commitment as a state of psychological well-being related to studies that are positive and meaningful. Kahu and Nelson (2018) expressed that it is an evolving concept that encompasses a variety of institutional practices and student behaviors related to satisfaction and achievement, including homework time, adaptability, social and academic integration, and teaching practices.

Christenson, Reschly, and Wylie (2012) argued that Commitment consists of 3 dimensions, behavioral commitment (how students are involved in learning in aspects such as effort), emotional commitment (the positive emotions that the student experiences during the learning process, such as euphoria), and cognitive commitment (cognition related to the use of effective learning strategies).

Schaufeli, Martínez, Pinto, Salanova, and Bakker (2002) found that Commitment consists of 3 dimensions. First, vigor was defined as high levels of energy and mental endurance while studying, characterized by the desire to invest effort in the tasks performed, even when difficulties appear in the process. Second, dedication was described as a high level of involvement in studies, which manifests a feeling of significance, inspiration, enthusiasm, and pride when challenged by the task. Third, absorption was characterized as a high state of concentration and immersion that makes time pass quickly when tasks are performed. Much of the research points to the predictive character of commitment in relation to success and performance (Lutz & Culver, 2010; Rodríguez-Izquierdo, 2020; Svanum & Bigatti, 2009).

2.4. Performance

Performance, or achievement, is the extent to which a student, teacher or institution has attained their short or long-term educational goals. Student performance in higher education is especially affected by various socioeconomic, psychological, and environmental factors (Hijazi & Naqvi, 2006). In light of this, many papers investigated performance as an important antecedent to forecast students' future behavior (Akesa & Dhufera, 2015; Mushtaq & Khan, 2012; Shahzadil & Ahmad, 2011). Mushtaq and Khan (2012) explored the important factors that affect the students' performance, and found that communication, learning facilities, proper guidance and family stress are the factors that affect student performance. Shahzadil and Ahmad (2011) conducted a study on the performance of university students and found that there are 4 important factors (home environment, study habits, learning skills and academic interaction) which affect the performance and retention of students in higher education institutions.

Like some studies from an education perspective, Shahijan, Sajad, and Guptan (2018) found that performance is affected by student's satisfaction, and Pintrich and De Groot (1990) found that commitment is linked to customer outcome including performance. Also, Rojas-Mendez, Vasquez-Parraca, Kara, and Cerda-Urrutia (2009) found performance as an important factor leads to customer's loyalty.

2.5. Loyalty

Customer loyalty has been studied by many researchers as it is an important strategic goal of a company and it is an important factor of customer satisfaction in the service industry (Shin, Hwang, Lee, & Cho, 2015). Czepiel and Gilmore (1987) viewed Loyalty as a result of a dynamic emotional process and stated that Loyalty is a tendency supported by commitment, a positive attitude, previous knowledge, consentience, and trust.

In marketing related research, loyalty is analyzed as a component of one (general loyalty), two (attitudinal and behavioral) or four dimensions (cognitive, affective, conative, action). Based on this approach, loyalty models were approached and tested (Bobalca, Gatej(Bradu), & Ciobanu, 2012; Evanschitzky & Wunderlich, 2006; Harris & Goode, 2004; McMullan & Gilmore, 2002; Oliver, 1999).

In educational business, loyalty requires developing a strong relationship with students who eventually provide the financial basis for university activities (Henning-Thurau, Langer, & Hansen, 2001). Rojas-Mendez, Vasquez-Parraca, Kara, and Cerda-Urrutia (2009) explained student loyalty in higher education institutions by examining key factors influencing loyalty, PSQ (Perceived Service Quality), Satisfaction, Trust, and Commitment. These factors were examined within a model that is assumed to be comprehensive enough to explain loyalty.

Kang, Song, and Hwang (2013) viewed loyalty as a student's behavioral intention, such as pride in the university that students feel, active promotion of classes, and the recommendations of friends. With this in mind, student loyalty can be used as a critical measure in the business success of higher education institutions that aim to retain students until graduation.

3. Research Method

3.1. Research Model

Based on the review above, the proposed model is shown in Figure 1. This study adopted Parasuraman, Zeithaml, and Berry (1988)'s approach, and the dimensions of SERVQUAL were defined as the ability of higher education organizations to meet or exceed undergraduates' expectations.

In this study, SERVQUAL was measured by 5 all dimensions, Tangibles, Responsiveness, Reliability, Assurance and Empathy. Satisfaction, Commitment and Performance are

used as meaningful mediating variables, and factors of these variables are measured by multidimensional scales. Loyalty is used as the most important dependent variable in this study.

3.2. Research Hypothesis

3.2.1. The Impact of Service Quality on Satisfaction

For this study, dimensions of service quality can be used as independent variables, because they play an important role in the academic success of undergraduates and raising the reputation of universities. Several research papers have indicated that positive perceptions of service quality have a significant influence on satisfaction (Alves & Raposo, 2010), and that positive perceptions of service quality have a significant influence on commitment (Ding, Hu, Verma, & Wardell, 2010; Rodríguez-Izquierdo, 2020).

Abu Hasan et al. (2008) hypothesized about the relationship between service quality and satisfaction in private higher education institutions. From a similar view, the research of students in a public university in Ghana, Mattah, Kwarteng, and Mensah (2018) found positive relationships among education service quality, satisfaction and loyalty. In the case of a private university in Ireland, Prentice, McLaughlin, and Brady (2018) studied the relationships between service quality, value and satisfaction on student customer intentions and behavior, and found that perceptions of good service quality will have a significant positive impact on satisfaction. In a study of Saudi Arabian private higher education institutions, Azam (2018) hypothesized about the relationship between service quality dimensions and satisfaction and highlighted that there is a significant relationship among the four dimensions (Assurance, Empathy, Reliability, Responsiveness) and customer satisfaction and behavioral intentions. Thus, the following hypotheses can be set up.

Figure 1: Research Model

H1: Service quality has a positive effect on satisfaction.

H1-1: Tangibles of service quality have a positive effect on satisfaction.

H1-2: Responsiveness of service quality has a positive effect on satisfaction.

H1-3: Reliability of service quality has a positive effect on satisfaction.

H1-4: Assurance of service quality has a positive effect on satisfaction.

H1-5: Empathy of service quality has a positive effect on satisfaction.

3.2.2. The Impact of Service Quality on Commitment

From a similar perspective, Sumardi and Fernandes (2018) analyzed the relationship between management process alignment, service quality, organizational commitment and high performance. They found that the mediation variables have significant effects on service quality and organizational commitment. Additionally, there is a relationship between management process alignment and high educational performance in Makassar, Indonesia. Trivellas and Santouridis (2014) studied the relationship between service quality and organizational commitment in higher education and found that good service quality will have a significant positive impact on commitment. Thus, the following hypotheses can be set up.

H2: Service quality has a positive effect on commitment.

H2-1: Tangibles of service quality have a positive effect on commitment.

H2-2: Responsiveness of service quality has a positive effect on commitment.

H2-3: Reliability of service quality has a positive effect on commitment.

H2-4: Assurance of service quality has a positive effect on commitment.

H2-5: Empathy of service quality has a positive effect on commitment.

3.2.3. The Impact of Satisfaction and Commitment on Performance

Several studies were carried out to explore factors affecting university students' performance. In general, students' performance in higher education is affected by various socioeconomic, psychological, and environmental factors (Hijazi & Naqvi, 2006). More recent efforts have examined student satisfaction, commitment, achievement, and behavioral intention independently as measures of students' success (Hoffman & Lowitzki, 2005). As in the study on the experiential model of international students' satisfaction and performance, Shahijan, Sajad, and Guptan

(2018) reported that performance is affected by different factors such as university image, students' expectations and experience, service quality, and degree of satisfaction, and stated that there is a positive linkage between satisfaction and performance.

From a similar point of view, commitment has been linked to many beneficial outcomes including performance (Pintrich & De Groot, 1990). Spedding, Hawkes, and Burgess (2017) found a positive relationship between commitment and performance. Thus, the following hypotheses can be set up.

H3-1: Satisfaction has a positive effect on performance.

H3-2: Commitment has a positive effect on performance.

3.2.4. The Impact of Satisfaction, Commitment and Performance on Loyalty

Loyalty involves a process in which a customer's cognition, affect, conation, and behavior take place (Oliver, 1999). Mattah, Kwarteng, and Mensah (2018) found a positive relationship between satisfaction, commitment and loyalty from the research of students in a public university in Ghana. Annamdevula and Bellamkonda (2016) proposed a mediation model that links service quality and student loyalty via student satisfaction by the survey from three oldest state universities in India. They found effects of service quality on student loyalty with the mediator satisfaction. From the research, satisfaction is considered as a mediating variable.

In educational business, loyalty can be used as a critical measure in the success of higher education institutions. Antecedents of loyalty, such as service quality, motivation, satisfaction, trust, and commitment have been identified in previous research (Lee & Lee, 2018; Rodriguez-Ardura and Meseguer-Artola, 2017; Rojas-Mendez, Vasquez-Parraca, Kara, & Cerda-Urrutia, 2009; Song & Kim, 2012).

This procedure was designed to explain loyalty in higher education institutions by examining key factors. Satisfaction, Commitment and Performance were examined within a model that is assumed to be comprehensive enough to explain Loyalty. Thus, the following hypotheses can be set up.

H4-1: Satisfaction has a positive effect on loyalty.

H4-2: Commitment has a positive effect on loyalty.

H5: Performance has a positive effect on loyalty.

3.3. Sample and Data Collection

To carry out this research, a survey was conducted on undergraduates involved in business at E. university in Korea. This university is a private university located in Gyeonggi province that aims to develop medical-health

care. The university operates convergence medical business departments that include a number of subjects that help students broaden their knowledge about careers and find employment.

A questionnaire was given to students during the last week of the Fall 2019 semester. A total of 280 students, (about 40 students per class) taking 8 courses related to business administration, responded to the questionnaire. These courses include introduction to management, economics, accounting, distribution, practical finance, employment information search, venture start-up, and entrepreneurship. The survey was conducted by a self-administered method that requires respondents to fill out the questionnaire directly. Of the 270 total questionnaires collected through the survey, 252 were used for statistical analysis, while 18 were excluded as they were found to be insincere or could not be used as data due to missing parts of the survey. In addition, the statistical program SPSS 22.0 was used for empirical analysis for the paper.

The frequency analysis of the participants (N=252) was conducted to explain demographic characteristics and is presented in Table 1.

Among the survey participants, 68.3% (N=172) reported their gender as female and 31.7% (N=80) as male. This is the same as the student distribution pattern of the university, where there are far more girls out of all students. According to the respondents' grade distribution, 36.5% (N=92) were freshmen, followed by 28.6% (N=72) seniors, 21.0% (N=53) juniors, and 13.9% (N=35) sophomores. In the survey of respondents' major departments, 58.7% (N=148) were in natural science, followed by 17.5% (N=44) in humanities/social studies, 13.9% (N=35) in engineering, and 9.6% (N=25) in arts and physical training.

Table 1: Demographic Characteristics of the Sample

Variable	Categories	Frequency	
		N	Percentage (%)
Gender	Male	80	31.7
	Female	172	68.3
Grade	Freshman	92	36.5
	Sophomore	35	13.9
	Junior	53	21.0
	Senior	72	28.6
Major/ department	humanities/social studies	44	17.5
	natural science	148	58.7
	engineering	35	13.9
	arts and physical training	25	9.9

3.4. Measures

In order to measure the constructs in the suggested model, validated measurement items were adapted from literature reviews and slightly revised to ensure their appropriateness for the service quality of private universities in Korea. From the basic data of the study, demographic variables were measured by nominal measures. In addition, the derived items were measured on a 5point Likert-type scale, anchored from strongly disagree (1) to strongly agree (5).

3.4.1. Measures of Service Quality

The dimensions of Service Quality, as it is related to tangibility, assurance, empathy, reliability and responsiveness were measured using 25 items from Al-Alak and Alnaser (2012), Akhlaghi, Amini, and Akhlaghi (2012), Parasuraman, Zeithaml, and Berry (1988), Park and Kim (2012), Yousapronpaiboon (2014).

First, as for tangibles, the study used 5 items including 'The business class is well-organized with an external environment', 'The business class is equipped with proper facilities and equipment for education', 'Equipment and facilities work well for the business class', 'The overall atmosphere of the college's business education facilities is good', and 'Facilities are suitable for taking business related classes'.

Second, as for responsiveness, the study used 5 items including 'The business class professor answers questions easily', 'The business class professor quickly proceeds with feedback on the contents of the education', 'The business class professor offers a variety of knowledge as well as the contents of the lecture', 'The business class professor provides a variety of information about career and self-development', and 'The business class professor is quick to consult and answer questions'.

Third, as for reliability, the study used 5 items including 'The business class proceeded correctly according to the schedule', 'Attendance and evaluation are properly managed in the business class', 'Credits are granted fairly and reliably', 'The business class starts and ends on time', and 'Requirements related to the business class are accurately handled'.

Fourth, as for assurance, the study used 5 items including 'The business class professor has sufficient knowledge of the education', 'The business class professor gives appropriate answers to the questions', 'The business class professor's attitude, words and actions give credibility', 'The business class professor's behavior and lectures are giving me confidence', and 'After the business class, I gained confidence in the subject'.

Fifth, as for empathy, the study used 5 items including 'Contents of the business class reflect the interests of the

students well’, ‘The business class induces discussion participation and is not just a general lecture’, ‘The business class professor understands what the students need’, ‘There is smooth communication with the professor during the business class’, and ‘Contents of the business class are well considered for the position of the students’.

3.4.2. Measure of Satisfaction and Commitment

For satisfaction, 4 items were used including ‘The business class was consistent with what was expected’, ‘The business class was better than expected.’, ‘I am satisfied with the quality level of the professor’s expertise, and teaching ability’ and ‘I am generally satisfied with the business class curriculum.’ These are borrowed From Al-Alak and Alnaser (2012), Ding, Hu, Verma, and Wardell (2010), Lee, Jung, and Seong (2019), Lee and Lee (2018), and Oliver (1980).

Commitment was measured with 6 items adapted from Ding, Hu, Verma, and Wardell (2010), Lee and Lee (2018), and Rodríguez-Izquierdo (2020). These items include ‘I am sure that I have carried out the tasks of this business class properly’, ‘I was able to do as well in the business class as I wanted’, ‘I understood what to learn in the business class’, ‘I concentrated on the material in this business class’, ‘The contents of the business class were not easy, but I could understand it with my ability’, and ‘I was able to complete my assignments without any particular effort’.

3.4.3. Measure of Performance

Performance was measured by 5 items adapted from Akessa and Dhufera (2015), Mushtaq and Khan (2012), Park and Kim (2012), and Shahzadi and Ahmad (2011). These items include ‘The contents and presentation of the business class helped me improve my knowledge’, ‘I felt the need to learn new information through the business class’, ‘I fulfilled my purpose by taking this business class’, ‘I felt my knowledge improved from the business class’, and ‘The business class has helped self-development’.

3.4.4. Measure of Loyalty

Loyalty was measured using 4 items adapted from Bobalca, Gatej(Brad), and Ciobanu (2012), Kang, Song, and Hwang (2013), and McMullan and Gilmore (2002). The 4 items include ‘I will recommend the business class to others’, ‘I have been talking positively about the business class’, ‘I will talk about the business class in a good way to others’, and ‘I would like to take another class from the professor if I have a chance’.

4. Results

4.1. Verification of the Reliability and Validity

In order to analyze the reliability and validity of the questionnaire measurement, Exploratory Factor Analysis and Cronbach’s α were verified (Choi & Lee, 2019). Cronbach’s α is widely known as an internal consistency estimate of the reliability of test scores. The extraction of factor analysis was based on principal component analysis. The rotation of the factors was conducted to maintain independence among the factors and to simplify the loading of each factor by using the varimax method, which is an orthogonal rotation method. A factor loading greater than 0.5 can be considered a significant variable.

4.1.1. Analysis of the Reliability and Validity of Independent Variables

This study conducted an Exploratory Factor Analysis to verify the validity of 25 independent variables of the educational service quality. As a result, 5 factors were extracted as shown in Table 2. These factors explain 85.312% of the total variance. The KMO value was used as a coefficient that verifies the suitability of the sample size, and it was high at 0.953 (df=300). Bartlett’s test indicated that data were sufficient to proceed for the factor analysis, because correlation between variables was statistically significant ($p < 0.001$).

The reliability analysis of independent variables (educational service quality) shows that Cronbach’s α coefficient for factor 1 (reliability) is 0.948, factor 2 (assurance) is 0.956, factor 3 (empathy) is 0.953, factor 4 (tangibles) is 0.940, and factor 5 (responsiveness) is 0.972, and all of them were high values. Measuring variables using this study were applied similarly to those of existing studies. As a result, it was confirmed that values on the educational service quality were obtained as indicators of the validity (convergent and discriminant validity) and the reliability of variables.

4.1.2. Analysis of the Reliability and Validity of Mediating and Dependent Variables

This study conducted an exploratory factor analysis to verify the validity of 15 mediating variables: satisfaction (4), commitment (6), performance (5) and 4 dependent variables (loyalty) of the educational service quality. As a result, 4 factors were extracted as shown in Table 3. These factors explain 87.077% of the total variance. The KMO value was used as a coefficient that verifies the suitability of the sample size, and it was high at 0.964 (df=136). Also Bartlett’s test indicated that data were sufficient to proceed for the factor analysis, because correlation between variables was statistically significant ($p < 0.001$).

Factor and Variables		Rotated Component					Cronbach's α	
		1	2	3	4	5	remove item α	
Reliability	The business class proceeded correctly according to the schedule.	.843					.931	.948
	Attendance and evaluation are properly managed in the business class.	.815					.935	
	Grants credits fairly and reliably.	.800					.932	
	The business class starts and ends on time.	.791					.947	
	Accurately handle the requirements related to the business.	.788					.934	
Assurance	The business class professor has sufficient knowledge of the education.		.831				.943	.956
	The business class professor gives appropriate answers to the questions.		.811				.945	
	The business class professor's attitude, words and actions give credibility.		.782				.944	
	The business class professor's behavior and lecture are giving me confidence.		.749				.948	
	After the business class, I got confidence in the subject.		.714				.947	
Empathy	Contents of the business class reflect the interests of the students well.			.819			.937	.953
	The business class induces discussion participation not general lecture.			.769			.951	
	The business class professor understands what the students need.			.761			.939	
	There is smooth communication with professor during the business class.			.727			.942	
	Contents of the business class are well considered for the position of the students.			.722			.943	
Tangibles	The business class is well-organized with an external environment.				.930		.915	.940
	The business class is equipped with proper facilities and equipment for education.				.901		.923	
	Equipment and facilities work well for the business class.				.900		.925	
	The overall atmosphere of the college's business educational facilities is good.				.847		.930	
	Facilities are suitable for taking business related classes.				.832		.938	
Responsiveness	The business class professor answers questions easily.					.747	.965	.972
	The business class professor quickly proceeds with feedback on the contents of the education.					.726	.964	
	The business class professor offers a variety of knowledge as well as the contents of the lecture.					.721	.965	
	The business class professor provides a variety of information about career and self-development.					.700	.969	
	The business class professor is quick to consult and answer questions.					.689	.966	
Kaiser-Meyer-Olkin Measure: .953 df = 300 Bartlett's Test Sig. : .000		Initial eigen-values	14.230	3.473	1.560	1.197	0.867	Rotation
		Rotation eigen-values	4.783	4.357	4.336	4.276	3.577	Variance Sums
		Rotation Variance (%)	19.131	17.429	17.344	17.102	14.306	(%) 85.312

* Extraction Method: Principal Component Analysis, Rotation Method: Varimax. with Kaiser Normalization
 * Rotation converged in 6 iterations.

Table 3: Analysis of the Reliability and Validity of Mediating and Dependent Variables

Factor and Variables		Rotated Component				Cronbach's α	
		1	2	3	4	remove item	α
Performance	The contents and presentation of the business class helped me improve my knowledge.	.745				.946	.953
	I got the need to learn the knowledge through the business class.	.742				.943	
	I fulfilled my purpose of taking the business class.	.711				.940	
	I felt my knowledge improved from the past by the business class.	.694				.942	
	This business class has helped self-development.	.649				.942	
Commitment	I am sure that I have carried out the task of the business class properly.		.797			.898	.919
	I was able to do well in the business class as I wanted.		.760			.888	
	I understand what to learn in the business class.		.730			.893	
	I concentrated on the business class.		.726			.900	
	The contents of the business class were not easy, but I could understand it with my ability.		Removed				
	I was able to carry out my assignment without any particular effort.		Removed				
Satisfaction	The business class was consistent with what was expected.			.749		.884	.966
	The business class was better than expected.			.736		.930	
	I am satisfied with the quality level of professor's expertise, teaching ability and human aspects.			.733		.931	
	I am generally satisfied with the business class curriculum.			.732		.917	
Loyalty	I will recommend taking the business class around.				.755	.955	.971
	I have been talking positively about the business class.				.730	.963	
	I will talk about the business class in a good way around.				.721	.960	
	I would like to take another class of the professor if I have a chance.				.713	.969	
Kaiser-Meyer-Olkin Measure: .964 df = 136 Bartlett's Test Sig. : .000		Initial eigen-values	12.675	0.895	0.675	0.558	Rotation Variance Sums (%)
		Rotation eigen-values	3.953	3.728	3.594	3.528	
		Rotation Variance(%)	23.253	21.929	21.142	20.753	87.077
* Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization.							
* Rotation converged in 7 iterations.							

[illegible]

The results of the verification of significance of independent variables put into the multiple regression equation for the dependent variable (satisfaction) are as follows; Tangibles ($t = 2.394, p = .017 < .05$), responsiveness ($t = 3.065, p = .002 < .01$), assurance ($t = 2.394, p = .001 < .01$), and empathy ($t = 3.065, p = .000 < .01$) have a significant effect on satisfaction. However, reliability ($t = -.383, p = .702 > .05$) has no significant effect on satisfaction. Thus, Hypothesis 1 (tangibles, responsiveness, assurance and empathy) is accepted partially.

4.3.2. Hypothesis 2 Verification

The results of the multiple regression analysis for Hypothesis 2: ‘Service quality (tangibles, responsiveness, reliability, assurance and empathy) has a positive effect on commitment’ were shown in Table 6.

The result shows that the R^2 is .623. This implies that 5 independent variables explained about 62.3% of the variance in the dependent variable of commitment. The adjusted R^2 , reflecting the degree of freedom (d.f. = 5, 246), was found to be .616. Durbin-Watson is 2.011, close to the reference value of 2 and not close to 0 or 4, so it is judged that there is no correlation between the residuals, and the regression model is appropriate. The F Value 81.415 ($p = .000$) of the regression model indicated an overall significant effect of the independent variables on the dependent variable (commitment).

The results of the verification of significance of independent variables put into the multiple regression equation for the dependent variable (commitment) are as follows; Tangibles ($t = .955, p = .340 > .05$) have no significant effect on commitment. But responsiveness ($t = 3.724, p = .000 < .001$), reliability ($t = 2.022, p = .044 < .05$), Assurance ($t = 2.911, p = .004 < .01$) and empathy ($t = 3.921, p = .000 < .001$) have a significant effect on commitment. Thus, Hypothesis 2 (responsiveness, assurance, reliability and empathy) is accepted partially

4.3.3. Hypothesis 3 Verification

The results of the multiple regression analysis for Hypothesis 3: 'Satisfaction and commitment have a positive effect on performance' were shown in Table 7.

The result shows that the R^2 is .741. This implies that independent variables explained about 74.1% of the variance in the dependent variable of performance. The adjusted R^2 , reflecting the degree of freedom (d.f.= 2, 249), was found to be .739. Durbin-Watson is 1.961, close to the reference value of 2 and not close to 0 or 4, so it is judged that there is no correlation between the residuals, and the regression model is appropriate. The F Value 356.652 ($p = .000$) of the regression model indicated an overall significant effect of the independent variables on the dependent variable (performance).

Table 6: Regression Analysis between Service Quality and Commitment

[illegible]

Table 7: Regression Analysis among Satisfaction or Commitment and Performance

[illegible]

Independent Variable	Unstandardized Coefficients		Std. Beta	T	Sig.	Results
	B	Std. Error				
(Constant)	-.514	.154		-3.329	.001	
Satisfaction	.434	.066	.367	6.551***	.000	adopted
Commitment	.176	.066	.134	2.672**	.008	adopted
Performance	.528	.068	.443	7.760***	.000	adopted
R = .889, R ² = .791, Adjusted R ² = .788				F = 311.954, Sig. = .000, Durbin-Watson = 1.824		
a: Dependent Variable = Loyalty, *: p<.05, **: p<.01, ***: p<.001						

First, four dimensions of service quality (tangibles, responsiveness, assurance and empathy) have positive effects on satisfaction. These dimensions affect satisfaction in the order of empathy, responsiveness, assurance and tangibles. The lack of an appropriate relationship between reliability and satisfaction reflects how the characteristics of an educational institution are different from that of a company. The overall results are similar to those of previous research on the relationship between service quality and satisfaction (Azam, 2018; Seng & Ling, 2013; Yousapronpaiboon, 2014).

Second, 4 dimensions of service quality (responsiveness, reliability, assurance and empathy) have positive effects on commitment. These dimensions are shown to affect commitment in the order of responsiveness, empathy, assurance and reliability. Responsiveness has been identified as an important factor that can lead to educational immersion and trust. The overall results are similar to those of previous research (Rodríguez-Izquierdo, 2020; Trivellas & Santouridis, 2014).

Third, it has been shown that satisfaction and commitment have positive effects on performance. Comparing the two variables, satisfaction had a slightly stronger effect on performance than on commitment. For high performance, the role of commitment is also emphasized along with the results of satisfaction (Svanum & Bigatti, 2009).

Fourth, satisfaction, commitment and performance have positive effects on loyalty. They are shown to affect Loyalty in the order of performance, satisfaction and commitment. Loyalty is to exchange important information related to the contents of the business class with each other.

Today, universities are undergoing rapid changes in the educational environment, and there are continual needs for development and enhancement of service quality. A private university will be able to draw students' satisfaction and commitment through the realization of business education service quality that helps students find jobs and develop start-up related thinking and knowledge. This will lead to practical performance that is consistent with the mission of raising employment rates. In addition, universities can establish a specialized convergence business curriculum by continuously providing feedback on students' high loyalty.

5.2. Limitation

This study has some limitations. They are summarized as follows.

First, the data were from undergraduates of one private university, which means that it is hard to generalize the results as a characteristic of Korea as a whole. Future studies can use larger samples, including students of other private universities, to allow the results to be generalized with more confidence.

Second, since this study focused on practical private universities in Korea, which are focusing on improving

employment rates, the direction of the research may not be in line with the case of research-oriented universities. Therefore, it is necessary to expand the scope of the survey to college students in other diverse majors.

Third, this study made a research model by analyzing satisfaction, commitment, and performance as affecting factors in the relationship between service quality and loyalty.

But, from the simplicity of the research model, the results of the study were derived from statistical analysis centered on correlation and regression analysis. For this reason, there is a limit to not checking the research model through a more rational path analysis by applying structure equation model (SEM).

Fourth, there will be a variety of variables that can be mediated between service quality and loyalty. The theoretical review in this study confirmed that there are various variables that may be related to business service quality, such as value (Prentice, McLaughlin, & Brady, 2018; Sung, Kim, & Youn, 2014), motivation (Lee & Lee, 2018), attachment (Lee, Jung, & Seong, 2018), and trust (Lee & Bea, 2006).

The model was simplified by applying only a few important variables. However, as mentioned above, many variables related to business service quality in higher education could be identified. In the future, it is necessary to carry out another empirical study that apply appropriate research models to structure equation model (SEM). Studies related to the application of new variables need to be carried out

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