SERVICE QUALITY IN HIGHER EDUCATION BASED ON STUDENTS' PERSPECTIVES

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ABSTRACT: *This study investigated quality service delivery in higher education based on students' perspectives. The study aimed to determine whether students' expectations of service quality in higher education significantly differed from what they experienced and whether their experience of service quality predicted their satisfaction and loyalty. Four hundred and twenty first-year students were sampled from two public universities to participate in the study. The data gathering instrument used in the study was the students' evaluation of service quality questionnaire. Analysis was done using descriptive statistics and structural equation modeling techniques. Results showed that the average mean score of prior expectations of university service quality was significantly higher than the average mean score of experience, suggesting that what students expected of university service quality was higher than what they experienced. The results also indicated that students' experiences of service quality had a significant direct effect on their satisfaction levels. Students' levels of satisfaction in turn significantly and positively predicted their loyalty. The results further indicated that students' service quality experience had an indirect (mediated by satisfaction) significant and positive effect on loyalty. Higher education authorities are encouraged to improve service quality, which is a critical way to enhance students' satisfaction and, for that matter, their loyalty and stay intentions.*

KEYWORDS: Loyalty, Satisfaction, Expectations, Service Quality, Experience, Higher Education.

INTRODUCTION

The rising demand for higher education in recent years has led to an increase in degree-awarding institutions (Halai, 2017; Williams & Harvey, 2010; Sultan & Wong, 2010). While the increase has aided in meeting the ever-increasing demand for higher education, many stakeholders have raised concerns about the quality of graduates produced by these institutions (Srikanthan & Dalrymple, 2007). Thus, institutions are under pressure to assure the consuming public of the quality of their products (Dehghan et al., 2014; Wong et al., 2012; Cheung et al., 2011). In response to this pressure, quality improvement and quality assurance systems have now become vital in both public and private higher educational institutions (Halai, 2017; Dehghan et al., 2014; Wong et al., 2012; Cheung et al., 2011) where maximum efforts have been put in place to improve service quality. The quest for quality improvement seems to have in turn triggered an interest in research on higher education quality systems and procedures. Most of these studies tried to use models and related theories in research on service delivery in higher education. For instance, researchers (Wong et al., 2012) have tested the SERVQUAL framework in higher education teaching and learning. Cuthbert (1996) has also tried to develop a scale for measuring quality in pre-tertiary institutions. Oldfield (2000) utilised a customer satisfaction model called the expectancy disconfirmation model in research on quality service delivery in higher education. Under this model, students compare their prior expectations of university service quality with their actual service experience.

While these model-based study efforts seem to have advanced education stakeholders' understanding of quality higher education, there seems to be a persistent desire for fine-turning the models and techniques for use in estimating service quality in higher education in the 21st century (Wong et al., 2012). One way a model could be refined is by considering new variables within the established framework that are potentially powerful in explaining and predicting consumer behaviour. In their critique of the validity of the SERVQUAL model, Cronin and Taylor (1992) argue that researchers must examine additional factors, such as student loyalty, to improve the prediction ability of the service quality model. It is recognized that neglecting or removing crucial variables from a model may lead to model misspecification issues. This research aimed to evaluate the function of student loyalty within the existing framework for service quality and customer satisfaction. With a particular emphasis on the post-admission decision-making process of students, this study examined the relationship between students' previous expectations of quality service, their experience of quality service, their levels of satisfaction, and their loyalty. The ultimate objective of this study was to present an adaptive conceptual framework for researching and comprehending service quality in higher education from students' viewpoints.

Research Hypothesis

The following hypothetical assumptions were made to guide the study:

1. **H1**: Students' expectations of service quality differ from their experience
2. **H1:** Students' experience of service quality in higher education significantly affects their satisfaction levels
3. **H1:** Students' levels of satisfaction have a significant direct effect on their loyalty
4. **H1:** Students' experience of quality has a significant direct effect on their loyalty
5. **H1:** Students' expectations of quality service have a significant direct effect on their levels of satisfaction.

LITERATURE REVIEW

Examination of higher education research literature suggests that there has not been a consensus among researchers regarding service quality definition and dimensions. Parasuraman et al. (1988) proposed the SERVQUAL model to define the multiple characteristics of service quality. Service quality in this model is explained as a "form of attitude, related but not equivalent to satisfaction, and results from comparing expectations with perceptions of performance." When applied within the context of higher education, it may be viewed as a distinction between what a student expects to receive and his experience of the actual delivery (O Neil & Palmer, 2004). However, researchers (Cronin & Taylor, 1992) have criticized this SERVQUAL model with the argument that it does not possess sufficient dimensions to evaluate service quality in higher education. The scholars propose another SERVPERF model to measure service quality, emphasizing performance level attributes to measure service quality (Munshi, 2019). Despite this development, research studies still apply the SERVQUAL model to measure service quality in higher education settings with enhanced dimensions. In most of these cases, the dimensions differ from one researcher to the next. Wong et al. (2012) propose five service quality dimensions: responsiveness, assurance, tangibles, reliability, and empathy. Lagrosen et al. (2004) identify 11 dimensions broken down into 31 questionnaire items. The 11 dimensions include teaching effectiveness, infrastructure facilities, programmes offered, corporate collaboration, information and responsiveness, external evaluations, post-study factors, and library services. The conceptual model proposed by Munshi (2019) integrates the quality of continual growth in students, which is comprised of knowledge and self-confidence. The first component is providing students with valuable information and skills. The second part of students' continual growth is fostering self-assurance, which enables them to take control of their self-improvement (Mushi, 2019).

This current research introduces a conceptual model which considers students' expectations of university service quality, their service quality experience, satisfaction, and loyalty—five (5) items comprised each of the students' expectations and experiences. Thus, students' expectations and experience concerning higher education quality dimensions such as administrative support, security and general welfare, curriculum and teaching, infrastructure, residential accommodation, and teaching and learning environment were sought. The study determined a link between expectations, experience, loyalty, and satisfaction.

CONCEPTUAL FRAMEWORK

This article presents a holistic approach to determining and comprehending higher education service quality. The conceptual mode is presented in Figure 2.
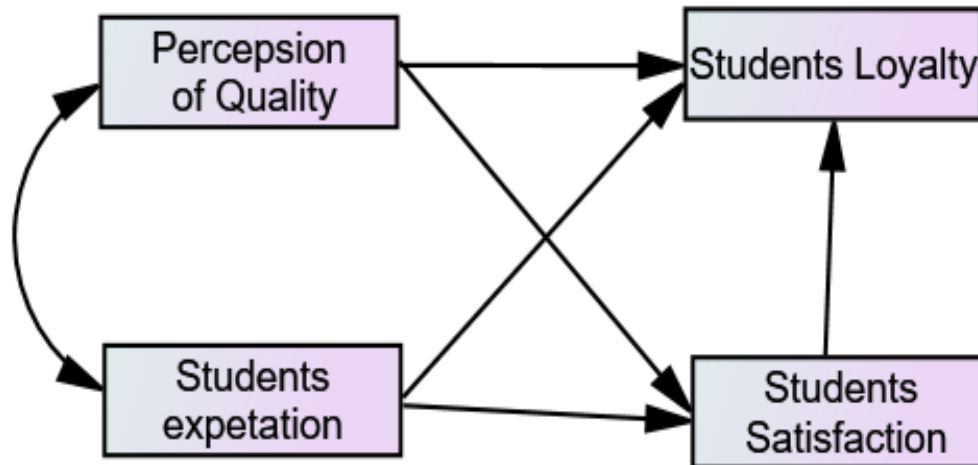

Figure 1: Quality Higher Education model

As illustrated in Figure 1, the model is premised on six focal relationships. The first focal relationship is the direct influence of quality experience on students' satisfaction levels. The second focal point is the direct relationship between satisfaction and loyalty. Finally, the third focal point concerns the relationship between students' expectations and satisfaction. The following section discusses empirical study findings regarding the various relationships in the model.

Service Quality and Student Satisfaction: Customer satisfaction is at the heart of every organisation. According to Hai (2021), satisfaction occurs when service quality and quantity meet or exceed the client's wants and expectations**.** The consequence is a recurring business and customer loyalty. Hai (2021) contends that satisfaction is the extent to which clients' needs are addressed**.** According to Zeithaml and Bitner (2000), customer satisfaction is the customer's assessment of a product or service that meets their wants and expectations. Weerasinghe et al. (2017) argue that service quality is customer satisfaction as evaluated by the gap between anticipated and delivered quality**.** Their contention brings to the fore the role of service quality in customer satisfaction. Bitner (1990) contends that service quality is the antecedent of customer satisfaction and customer satisfaction is the cause of service quality. Research evidence (Belás & Gabčová, 2016; Chavan & Ahmad, 2013) confirms the link between customer satisfaction and service quality. Thus, without service quality, customer satisfaction might not be possible.

Higher education aligns components of the service industry with universities as service providers and students as customers. Students draw satisfaction from university services by evaluating instructional and administrative activities that meet their desires and expectations.

Thus students' satisfaction is a product of service delivery and service usage in higher education settings.

Satisfaction and Expectations: The relationship between students' satisfaction and expectations has also been a well-researched issue in the higher education literature. Previous research studies (James, 2009; Morgeson, 2012; Belás & Gabčová, 2016; Hai, 2021) have consistently confirmed a direct relationship between expectations and satisfaction. The literature shows that people sometimes use expectations as a baseline to judge quality service delivery in higher education. Based on this, it might be concluded that expectations positively affect satisfaction. These prior expectations might color students' satisfaction judgment. Morgeson and Petrescu (2011) find that expectations have a positive direct effect. Poister and Thomas (2011), however, discover a negative direct effect of expectations on satisfaction.

Satisfaction and Loyalty: One key issue in the service industry worth considering is customer loyalty or stay intentions. Research evidence (Leninkumar, 2017) suggests that customer loyalty is the direct effect of customer satisfaction. When customers experience good quality service and are thus satisfied, they perceive the service as less risky and more profitable or beneficial. This would consequently attract their loyalty and stay intentions. Indeed, many researchers have argued that one of the determinants of customer loyalty, particularly in the service industry, is customer satisfaction (Belás & Gabová, 2016; Coelho & Henseler, 2012). Furthermore, Munari et al. (2013) suggest that satisfaction and loyalty are elements of absolute loyalty, with satisfaction as the beginning of loyalty.

RESEARCH DESIGN

The research design employed in this study was the descriptive cross-sectional research design. A common goal of cross-sectional research is to examine how a large group of individuals feel and behave toward a given subject or problem over time (Fraenkel, Wallen, & Hyun, 2012). A sample or the whole population is surveyed in this design, which measures the attitudes, behaviours, and/or characteristics of the participants in the study. Researchers present a survey instrument to a population sample in cross-sectional survey designs to assess the population's beliefs, habits, or traits as a whole. Amedahe (2003) argues that "descriptive cross-sectional research, the assumptions or relationships to be described should exist, and that valid description of activities, objects, processes, and persons is the objective." On the strength of Amedahe's argument, this study examined students' perceptions of higher education services. These phenomena of quality service delivery exist. Moreover, some level suggests that they might be somewhat effective. The exhibition of these traits clearly shows the existence of these phenomena, hence an endorsement of the descriptive design.

Population

The target population was all first-year students of two public universities in Northern Ghana. The choice of first-year students became necessary since they were yet to experience university service. Thus, the best time to tap into their expectation was the period just before they started experiencing university service. The first-year students of the two universities were 6,524.

Sample and Sampling Procedure

The study used stratified and simple random sampling techniques to sample respondents for the study. First, the sample frame of 473 was determined based on Cretch and Morgan's (1992) sample size determination table. Then, the two universities were put into strata, and the number of students picked from each stratum was proportionate to that university's entire first-year student population. For example, the following procedure was adopted to determine the number of students to sample from the university for development studies.

Population of students = 4,643.

Sample frame = 473

Sample of students from UDS = 4643/6524 * 473 = 337.

For the C. K Tedam University of Technology and Applied Sciences

Population of students = 1,881

Sample of students = 1881/6524 * 473 = 136.

A sample proportionate sampling technique was adopted in each university to get a representative sample of males and females. Table 1 shows the final sample.

Table 1: Sample of Students for the Study

University	Male	Female	Total
University for Development Studies	217	120	337
C. K. Tedam University	86	50	136

Source: Field Data 2022

Instrument

The main instrument used to collect the data was the students' perception of higher education service quality questionnaire. The choice of students' perception of higher education service quality questionnaire became necessary for several reasons. First, service quality is mostly assessed using a perception-based student questionnaire (Wright & O'Neil, 1992; Cashin, 1995).

The questionnaire items were determined through intensive literature review, focus group discussions with the students, and consultation with teachers and administrators in the two respective institutions. Thus, the development of the instrument went through different stages. The author engaged the students after the university-wide orientation workshop for first-year students in the 2020/2021 academic year. Orientation workshops are often organised to introduce first-year students to the university environment and explain the university's services, rights, privileges, and responsibilities. The researchers sampled 20 students from the enrolment and divided them into four groups of 5. Each group had a chairperson and a secretary. The groups were asked to write down 12 expectations as regards the following thematic areas:

1.   Administrative support

2.   Security and general welfare

3.   Curriculum and teaching

4.   Infrastructure

5.   Residential accommodation

6.   Teaching and learning environment.

The researcher supervised the exercise, and each group was given up to 3 hours to compile the list. After the exercise, the four groups' output was integrated into the 12 Likert scale expectations questionnaire. This constituted the first part of the questionnaire. This questionnaire was administered on 461 students. All protocols regarding ethical review of the research was done with the assistance of C. K. Tedam University of Technology and Applied Sciences Research Ethics Committee. Since the exercise was to proceed in two stages, it was imperative to ensure that the respondent who filled the first part (expectations section) was the same respondent filling the second part of it (perception of quality, loyalty, and satisfaction) a year later. Each questionnaire was therefore numbered using the student's registration number so that it would be possible to identify the student and let him or her fill the second part (his or her experience or perception of university service, loyalty and satisfaction relative to his expectation the previous year). It must be noted that the numbers were solely for identification of the questionnaire but never to disclose the real identity of the student.

In the 2021/2022 academic year, the second part of the questionnaire was prepared. This questionnaire was to solicit their experiences, satisfaction, and loyalty regarding the university's services over the past year. The items were based on the expectation items the students responded to in the previous year. Unfortunately, 33 students could not be traced. These students either abandoned the programme or were dismissed due to poor academic performance. Thus 423 students filled out the questionnaire.

Further editing of the questionnaire led to the removal of 13 questionnaires. These questionnaires were either wrongly answered or half completed. The remaining 410 questionnaires were scored and inputted into SPSS software version 20. The data went through a series of examination to ensure its reliability and validity. The questionnaire is presented in Appendix A.

Data Collection Procedure

The researcher himself collected the data. First, the researcher sought ethical clearance from the School of Chemical and Biochemical Sciences research review committee. When clearance was given, an introductory letter was obtained introducing the researcher to the other departments and universities for development studies. When permission was granted after the introduction, the researcher went ahead to collect the data.

Data Analysis

The survey responses were recorded and analysed using SPSS Version 18 and AMOS Version 20 software. Twenty (20) Likert scale questions measured the four components of the theoretical model (expectations, experience, satisfaction, and loyalty). In addition, six demographic questions sought information on gender, age, religious affiliation, year of study, programme of study, and motivation. Likert scale was used with a range of values from 1 to 5 to measure the perceived level of survey subjects: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree. The reliability of the instrument was first established using Cronbach's Alpha coefficient. Variables having item-total correlations less than 0.3 will be eliminated. Cronbach's Alpha value more significant than 0.60 is acceptable.

Checking Reliability of the Instrument

Reliability is the consistency and stability of an instrument in measuring what it is designed to measure (Heale & Twycross, 2015). Simply put, an instrument is reliable if it is consistent throughout time and within itself. There are several ways of determining the reliability of an instrument. The most popular is the use of the Cronbach Alpha Coefficient. Cronbach (1951) established the alpha coefficient to quantify the internal consistency of variables within the same group.

Consequently, Cronbach's Alpha coefficient may be used to assess the scale's reliability and exclude irrelevant variables from the model. Cronbach's alpha measures the degree of correlation between scales. Nunnally (1978) found that scales may be utilized if the Cronbach's Alpha value is more significant than 0.6, with optimal usage between 0.8 and 1. Additionally, variables having a corrected item-total correlation of less than 0.30 will be eliminated. Thus, through the use of SPSS software version 13, the researcher determined the reliability of the various constructs which constituted the research framework. The results are presented in Table 4.

Table 4: Test Results of Reliability

Construct	Number of items	Cronbach Alpha
Expectations	5	0.723
Experience	5	0.872
Satisfaction	5	0.880
Loyalty	5	0.752

Source: Field Data, 2022

Exploratory Factor analysis

The second analysis that the researcher did after the reliability test was exploratory factor analysis. The objective of exploratory factor analysis was to determine the convergence and discriminant values of each variable within the component groupings. Kaiser-Meyer-Olkin coefficient (KMO) is an index used to consider the appropriateness of factor analysis. The coefficient must be 0.5 and above ($0.5 \leq KMO \leq 1$), which is sufficient for factor analysis to be appropriate. Bartlett's test was used to ensure that observed variables are correlated with each other in the factor. For a test statistic of this parameter to be significant, it must be 0.5 or

greater than (sig Bartlett's Test < 0.05). The researcher also employed Eigenvalues of parameters to determine the number of factors in the EFA analysis.

The researcher screened the data for univariate outliers. Fortunately, no univariate outliers were found. Thus, the minimal data requirements for factor analysis were met with a sample size of 402 students. The Kaiser-Meyer-Olkin (KMO) estimate of sampling adequacy was .605, slightly higher than the generally accepted mark of 0.6 (Neill, 2008), indicating that this discovery factor was appropriate. Bartlett's test of sphericity was significant ($\chi 2$ (666) = 6390.666, $p < .05$), an indication that the variables were correlated with each other in factors. Examination of the diagonals of the anti-image correlation matrix indicated that they were all above .5. Last but not least, the communalities were all above .3, further confirming that each item shared some common variance with other items.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.605
Bartlett's Test of Sphericity	Approx. Chi-Square	6390.666
	Df	666
	Sig.	.000

Source: Field Data 2022

Since the primary aim of the researcher was to identify and compute composite scores for the factors underlying the version of students' evaluation of service quality questionnaire, the principal component analysis was used. Initial examination of the results suggested that Eigenvalues for the four factors explained 21%, 9%, 8%, and 6% of the variance, respectively. Therefore, Eigenvalues equal to or less than 1 were maintained in the analytical model. The analysis results further revealed that Eigenvalue = 1014 (≤ 1), and four components were identified to best summarize the data. Table 3 shows the results.

Table 3: Rotated Component Matrix

	Component			
	1	2	3	4
EXPT2			.867	
EXPT4			.942	
EXPT6			.476	
EXPT8			.486	
EXPT11			.745	
EXPR1	.850			
EXPR2	.881			
EXPR3	.835			
EXPR4	.853			
EXPR5	.746	.		
SAT1	.	.873		
SAT2	.	.796		

SAT3	..652		
SAT4	.743		
SAT5	.869		
LOYALTY 1		.	.67
LOYALTY 2			.65
LOYALTY3			.64
LOYALTY 4			.65
LOYALTY 5			.65

Checking Validity of the Instrument

Validity and reliability are vital components of every research work, particularly quantitative research. According to the Heale and Twycross, (2015) consideration must be given not only to the results of a study but also the accuracy and consistency of the instrument. He argues that the two constitute vital ingredients of quantitative research quality. Therefore, the researcher ensured the validity and reliability of the instrument before its use.

Validity

In this research, the researcher sought to ensure that the four constructs (namely: students' experience of university service quality, satisfaction, loyalty, and expectations of university service quality) were accurately measured. As a result, two classes of validity were determined. They included construct validity and discriminant validity.

Convergent Validity: Convergent validity is a form of construct validity. It tests the extent to which various indicators of a particular construct are close to one another. That is how closely related the items of a particular construct are to each other. It may also be described as how closely the new scale relates to other indicators and variables of the same construct (Krabbe, 2017). The purpose of the convergent validity test was to establish how accurately the various indicators of students' expectations, the experience of university service, satisfaction, and loyalty accurately measured the respective constructs. An indicator of convergent validity is the Average Variance Extracted (AVE). AVEs were computed using SPSS AMOS version 13. The following formula was applied:

$$\text{AVE} = \frac{\sum \textit{Standardised Loadings Square}}{\textit{NUMBER OF Indicators}}$$

AVE of 0.5 indicates convergent validity (Siegling & Petrides, 2015). The analysis suggests that all the four AVEs were 0.5 and above. The results are presented in Table 2.

Table 2: Average Variance Extracted (AVEs)

Construct	Number of items	AVEs
Expectations	5	0.521
Experience	5	0.566
Satisfaction	5	0.56
Loyalty	5	0.62

Source: Field Data 2022

The results in Table 2 suggest that all the AVEs are within the acceptable range. Apart from the satisfaction construct, which was 0.50, all the other constructs had AVEs of more than 0.50, suggesting strong convergent validity.

Discriminant Validity: Discriminant validity suggests that the various constructs are not similar. It is the degree to which a test or measure diverges from (i.e., does not correlate with) another measure whose underlying construct is conceptually unrelated to it (Siegling & Petrides, 2015). It is one of two aspects of construct validity. For example, the expectation construct should not be the same as the experience construct. The researcher obtained the discriminant validity construct using SPSS AMOS version 13. First, the AVEs were obtained. Then, the square root of each of them was computed to get the discriminant validity index. The computed index must be higher than the correlation among the respective constructs to establish the existence of discriminant validity. The results are presented in Table 3.

Table 3: Test Results of Discriminant Validity

Variable	Expectations	Experience	Satisfaction	Loyalty
Expectations	**0.6679**			
Experience	.24	**0.7529**		
Satisfaction	.016	.763	**0.7936**	
Loyalty	-.024	.309	.302	**0.675**

As seen in Table 3, the discriminant validity indices are higher than the correlation between the respective construct and the rest of the constructs. Thus, discriminant validity has been established.

Model Fitness Indices

The researcher proposed a model consisting of four constructs: expectations, experience, satisfaction, and loyalty. After collecting the data, the researcher intended to find out the extent to which the data collected fit the hypothetical model. These tests became necessary because every model's validity partly depends on its fitness level. Therefore, several well-known indicators of model fitness were examined. Several model fit indices have been specified to test the fitness of data to hypothesized models. These indices include the Chi-Square, Goodness of Fit Index (GFI), the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA). The results of the fitness test are presented in Table 5.

Table 5: Model Fit Indices

Model	CMIN	DF	P	CMIN/DF	GFI	NFI	CFI	RMSEA
Default Model	501.553	225	.093	1.773	.873	.932	.961	.054
Saturated Model					1.00	1.00	1.00	1.00
Independent Model	7399.549	276		26.810				.214

Source: Field Data 2022

Table 5 shows that the CMIN/DF is 1.773, p = 0.093 (spec. < 3.0), GFI = 0.873 (spec. > 0.90), NFI = 0.932 (spec. > 0.90), CFI = .961 (spec. > 0.90), and RMSEA = 0.054 (spec. < 0.05). By implication, the model has been deemed a good fit model and, therefore could be used to analyze further the structural relationships between the latent independent and the latent dependent variables. The measurement model is presented in Figure 3.
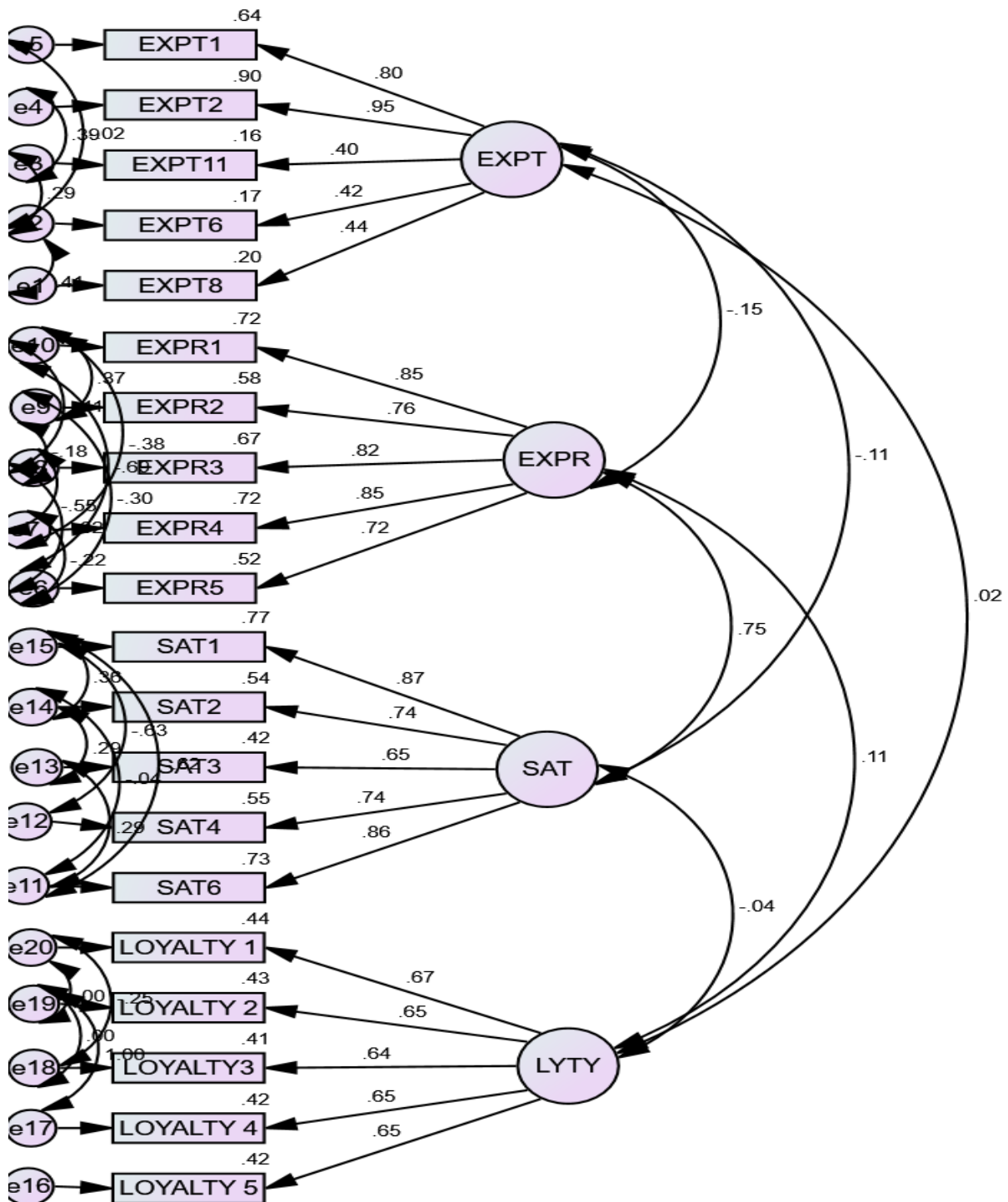

Figure 3: The Measurement Model of Higher Education Quality

Research Question 1

To what extent do students' prior expectations of university service quality differ from their actual experience of university service?

H1: Students' prior expectations of university service quality significantly differ from their real service experience.

The purpose of this question was to determine whether the expectations students had concerning service quality before their university education were the same as those they experienced when they finally started their education, lower than expected or higher. The research question was answered using descriptive statistics (means and standard deviations). The average mean scores of prior expectations and their experience of university services were compared. In this analysis, if the mean score of students' prior expectations of university service was higher than experience, students had more expectations than they had experienced. If prior expectations average mean score was lower than the experience mean score, they experienced more than expected. Table 4 shows the results.

Table 4: Average Mean Scores of Students' Prior Expectations and Experience regarding the University Service Quality

Prior Expectations				Actual Experience				
Variable	*N*	*Mean*	*SD*	*SEM*	*Variable*	*N*	*Mean*	*SD*	*SEM*
EXPT1	421	4.7411	.51819	.02526	EXPR1	421	2.3468	1.30509	.06361
EXPT2	421	4.6865	.59484	.02899	EXPR2	421	2.3682	1.26485	.06164
EXPT5	421	4.1805	.87052	.04243	EXPR3	421	2.4561	1.18967	.05798
EXPT6	421	4.2945	.85283	.04156	EXPR4	421	2.7767	1.26962	.06188
EXPT8	421	4.4181	.83726	.04081	EXPR5	421	3.4632	1.18992	.05799
Average Mean	**421**	**4.1455**	**.98416**	**.04796**		**421**	**2.8566**	**1.27785**	**.06228**

The average mean scores of students' prior expectations and their actual university experience are presented in Table 4. The average mean score of prior expectation of university service quality (*M= 4.1455, SD = .984)* is higher than their actual experience of university service quality (*M = 1.27785, SD = .0623*). The implication is that what students expected of university service was actually not being met as there was a gap between what they actually expected and what they experienced. According to researchers (Morgeson, 2012; Roch & Poister, 2006), students' experience of higher service quality increases the likelihood of positive disconfirmation, whereas higher expectations decrease the likelihood of positive disconfirmation while increasing the likelihood of negative disconfirmation. As a result, positive disconfirmation leads to greater satisfaction, while negative disconfirmation leads to decreased satisfaction. In other words, experience of higher service quality is more likely to exceed expectations and result in higher satisfaction. Higher expectations, on the other hand,

are less likely to be met, even if performance is excellent. Therefore, higher expectations can lead to negative disconfirmation and less satisfaction. Thus, in these particular studies, there is a negative disconfirmation in that expectations far exceed experience of service quality. The resultant effect of this on satisfaction is that students will certainly be dissatisfied.

Results of Structural Equation Analysis

Research questions 4 and 5 and hypotheses 2 and 3 were answered and tested respectively using the structural equation modeling technique. Structural equation modeling (SEM), also known as analysis of covariance structures and causal modeling, is a statistical approach family that comprises confirmatory factor analysis (CFA), structural regression, path, growth, multiple-groups, and multi-trait multimethod models. SEM techniques have been used in language testing for a variety of purposes, including assessing the internal structure of a test (or other measure) (Gu, 2014; In'nami & Koizumi, 2012), assessing the effect of test methods on test performance (Llosa, 2007; Sawaki, 2007), assessing the equivalency of models for different populations (Llosa or, 2005; Purpura, 1998; Shin, 2005), and understanding the effects of test administration or the influence of test taker factors such as language exposure (Kunnan, 1994), personality (Ockey, 2011), and strategy utilization (Purpura, 1997; 1999) on test performance.
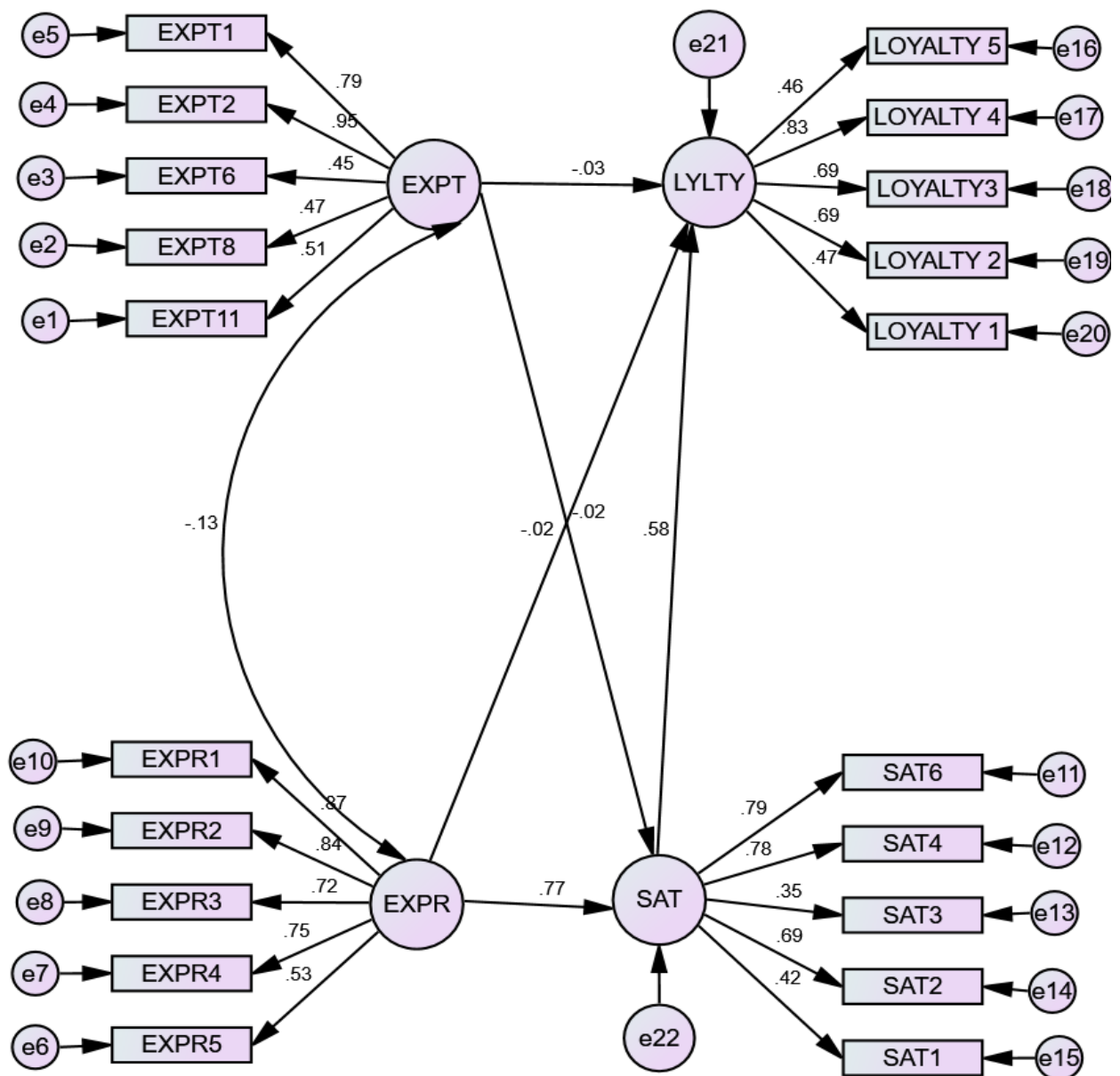
Figure 2: Structural Model of Service Quality in Higher Education

Research Hypothesis 2

H1: Students' experience of service quality in higher education significantly affects their satisfaction levels.

The results in Figure 2 indicate that students' experience of service quality has a significant direct effect on their levels of satisfaction (β= 0.77, P < .05). The implication is that every 1 unit increase in higher education service quality based on students' experience increases their satisfaction by 0.77 standard deviation units. Therefore, the null hypothesis of no significant effect of students' experience of service quality on their levels of satisfaction is rejected. The findings are expected because, by conventional wisdom, when students experience quality service delivery, their feeling of satisfaction with the service will be positive. Low experience of service quality will occasion a low level of satisfaction among students. The results resonate with the research work of Cronin et al. (2000), which found that service quality has a significant and direct impact on student satisfaction. The results are consistent with Mastoi, XinHai, and Saengkrod's (2019) results. The results also support the long-held belief of researchers, Elliot and Healy (2001), that student satisfaction is a short-term attitude resulting from evaluating educational experience. Some studies (Mastoi, XinHai & Saengkrod, 2019) in this area also agreed with the view of service quality leading before customer satisfaction.

Research Hypothesis 3

H1: Students' levels of satisfaction have a significant direct effect on their loyalty.

This hypothesis sought to determine whether or not students' levels of satisfaction has a direct positive effect on their loyalty to the university. As shown in Figure 2, students levels of satisfaction significantly influences their loyalty (β = 0.58, p< .05). This means that there is a positive causal relationship between students' levels of satisfaction and their loyalty and that every 1 unit increase in students' levels of satisfaction increases their loyalty by 0.58 units. This means that students' loyalty is a consequence of their levels of satisfaction with service quality. By implication, when students have positive experiences of university service, they will persist in dealing with the university since they see it as less risky. In consonance with the research results, researchers like Belás and Gabová (2016), and Coelho and Henseler (2012) have found that customer satisfaction is a determinant of customer loyalty.

Hypothesis 4:

H1: Students' experience of service quality has a significant direct effect on their loyalty.

The researcher sought to determine whether students' experience of university service quality significantly affects their loyalty to the university. As shown in Figure 2, there is a negative and insignificant effect (β= -0.02, p>.05) of students' experience of university service quality on their loyalty to the university. However, when satisfaction mediated between loyalty and experience of service quality, the effect of students experience of service quality on loyalty became significant and positive (β= 0.44, p<.05). Thus, the null hypothesis of no significant direct effect of students' experience of service quality on their loyalty cannot be rejected. The implication of this is that the effect of students' experience of university service quality on loyalty can only be significant and positive when mediated by satisfaction. This is consistent with research findings (Bryant, 2006; Özgüngör, 2010) which suggest that satisfaction is a prerequisite for loyalty and quality of life. Once students experience service quality and are

satisfied, their loyalty, commitment, and stay intentions will be guaranteed. In other words, student (customer) loyalty appears to result from their satisfaction.

Hypothesis 5

H1: Students' expectations of quality service have a significant direct effect on their levels of satisfaction.

The hypothesis sought to determine whether students' expectation of service quality in higher education significantly affects their levels of satisfaction. Results of the structural equation analysis are presented in Figure 2. The results suggest a negative and insignificant effect (β= -0.02, p>.05) of students' expectations on their satisfaction levels.. The results are inconsistent with previous research studies (Van Ryzin, 2004, 2006; James, 2009; Morgeson, 2012, Oliver & DeSarbo, 1988; Morgeson & Petrescu, 2011), which found a significant direct effect of expectations on satisfaction.

CONCLUSION

The findings have confirmed the causal relationship among the factors. Students' experience of quality service delivery influences their levels of satisfaction. Satisfaction, in turn, influences their loyalty. The causal relationship between students' expectation of university service quality and loyalty on the one hand, and the relationship between expectation and satisfaction on the other is negative and insignificant. There is a negative and insignificant direct causal relationship between quality experience and loyalty. However, when mediated by satisfaction, the relationship becomes positive and significant.

RECOMMENDATIONS

Institutions of higher learning are encouraged to improve upon their quality service delivery to attract the loyalty and stay intentions of their main customers—the students. Since customer expectation seems to serve as a basis for customer satisfaction and loyalty, it behooves institutions of higher learning to periodically carry out customer (students) expectations of service quality surveys, at least at the beginning of every academic year. This will enable them to work tirelessly to meet the quality expectations of the customers (students), which will engender satisfaction and loyalty among the students.

Limitations

The research was limited to two institutions, the sample size was minimal, and various other variables may have influenced student satisfaction other than the experience of service quality. However, from the restrictions above, the author offers various study options for future studies that will broaden the scope of comparative university research.

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