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Are there study mode differences in perceptions of university education service quality? Evidence from Zambia

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Abstract: While a plethora of studies examines the relationships amongst university education service quality, customer satisfaction and loyalty, there is hardly any focus in the literature on study mode differences. Further, many developing country contexts such as Zambia are under-researched, limiting generalisability of prior research conclusions. Hence, the purpose of this paper is to examine university study mode differences in the under-researched context of Zambia. Specifically, it examines study mode differences among undergraduate students in relation to service quality dimensions and overall satisfaction. Based on a quantitative approach, survey data were collected from 824 students at a public university and analysed using correlation and one-way analyses of variance techniques. The findings indicate that while each of the five dimensions of service quality performance (tangibility, reliability, responsiveness, empathy and assurance) is significantly related to overall student satisfaction for all study modes, distance students were the most satisfied on all dimensions, followed by evening students and the least were full-time students. For scholars, administrators and policymakers, the study

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Bruce Mwiya The authors belong to the Enterprise, Marketing and Strategy (EMS) Research and Consultancy Cluster in the Copperbelt University Business School, P.O. Box 21692, Kitwe, Zambia. This article is one of the many outcomes from the higher education service quality project the cluster has been working on since 2015.

PUBLIC INTEREST STATEMENT

The Zambian Higher Education Authority indicates a surge in the number of public universities from 2 in 1998 to 6 in 2018 and private universities from 0 in 1998 to 60 in 2018. The rising competition in the sector suggests a need for assessing and monitoring key stakeholders' perceptions of service quality. This study corroborates prior research findings suggesting that quality perceptions affect customer satisfaction and that if customers are not satisfied, they are less likely to engage in repeat business and are more likely to spread negative word of mouth about the service provider. This would eventually affect the sustainability and profitability of the entity concerned. Hitherto there is a dearth of studies exploring study mode differences in perceptions of service quality. Since the current study's findings indicate that distance and evening students are more satisfied than full-time students, the paper makes suggestions to administrators and policy-makers in higher education to address each service quality dimension to improve service performance.

shows that the service performance model is a valid and useful framework for assessing and monitoring how the primary stakeholders form their service quality perceptions of higher education. However, the students with less contact with university staff and facilities seem to be more satisfied, a phenomenon that requires amelioration and reconnoitring. Since the study took place in one public university, increasing the sample base by covering more universities would improve generalisability.

Subjects: Quality Management; Services Marketing; Higher Education Management

Keywords: service quality; university; higher education; study mode; SERVPERF; Zambia; developing country

JEL classification: M31; L15; I21

1. Introduction and background

Given that service quality in higher education is essential not only for ensuring effective human capital development (necessary for economic progress) but also for survival of each competing university, it is important that policymakers and managers are well informed if there are study mode differences in perceptions of quality and its consequences (Napitupulu et al., 2018; Sultan & Wong, 2018; Uppal, Ali, & Gulliver, 2018). Empirical literature indicating that there is a positive relationship amongst service quality, student satisfaction and loyalty is scanty in the African context (except for South Africa, Schalkwyk and Steenkamp, 2014 as well as Jager and Gbadamosi, 2010; and Zambia, Mwiya et al., 2017) and plenty in the developed countries such as UK (Douglas, Douglas, & Barnes, 2006), Australia (Sultan & Wong, 2018), as well as Spain (Marimon, Mas-Machuca, & Berbegal-Mirabent, 2018). Furthermore, scholars indicate that there is a shortage of literature highlighting whether there are differences in quality perceptions based on study modes. This question requires answers from empirical research because managers and policy-makers need to consider whether there is a need to vary implementation of quality issues based on differences in study mode. In recent times, universities are about knowledge generation through research and development, teaching and extension services through consultancy as well as commercialisation (Mwiya et al., 2017; Schalkwyk & Steenkamp, 2014). In this regard, students are clients interacting with universities at a fee for the purpose of knowledge acquisition and competences development (Sultan & Wong, 2018). In this highly competitive market for private and public universities, monitoring and evaluation of customer perceptions of service quality and satisfaction become important for survival (Douglas et al., 2006; Gupta & Kaushik, 2018).

The Zambian Higher Education Authority (HEA) was established under an Act of parliament No. 4 of 2013 to register and regulate universities in order to ensure the quality of service delivery. This is necessary for human capital development required for socio-economic progress. The HEA indicates that while from 1964 to the year 2000, the country only had 2 public universities, in 2017 the number of universities grew to 6 public universities and 60 private universities. Additionally, Zambian universities are also in competition with universities outside the country since tuition fees in some cases are almost the same. This calls for baseline studies on the quality of higher education services from the perspectives of various stakeholders.

Worldwide, there is a burgeoning of literature on service quality in higher education. Prior studies exploring service quality in higher education in Colombia (Cardona & Bravo, 2012), Jordan (Twaissi & Al-Kilani, 2015) and Portugal (Brochado, 2009), suggest that customer satisfaction can be explained by perceived service quality dimensions. Unfortunately, African countries are under-researched in terms of university service quality and this limits the generalisability of prior research conclusions. Studies exploring higher education quality suggest that perceived service quality positively influences not only student satisfaction but also loyalty and positive word of mouth (Arambewela & Hall, 2006; Gupta & Kaushik, 2018; Lim, 2018; Marimon et al., 2018; Naik, Gantasala, & Prabhakar, 2010;

Parasuraman, Zeithaml, & Berry, 1994; Zineldin, 2007). Recently Mwiya et al. (2017) explored the Zambian context regarding the influence of service quality on customer satisfaction. Besides Sultan and Wong (2018) in Australia and Douglas et al. (2006) in UK who found no moderating influence of study modes in the service quality-satisfaction link, there is a shortage of studies examining study mode differences.

This study aims at filling this gap by testing one of the many higher education quality models, i.e., SERVPERF in relation to study mode differences among senior undergraduate students.

Zambia is a lower middle-income country with per capita income of US\$,1646.14 equivalent to 13% of the world's average (World Bank, 2018). The country has a collectivist culture where people regard themselves as “we” rather than “I”; thus, individuals feel responsible for the well-being of others including the organisations they belong to or study in (Hofstede, 2017). In addition, culturally, Zambia has high power distance and low masculinity scores (Hofstede, 2017) and so individuals are expected not only to respect and not question authority but also to be seen to be supportive of others. This may have an influence on how individuals evaluate service quality elements. Therefore, it would be insightful for scholars, practitioners and policy-makers to explore if prior research findings can hold in such a different context.

The rest of the paper, firstly, reviews extant literature and suggests hypotheses. Secondly, it outlines the research design and its implementation. Thirdly, the paper reports and discusses the research findings. Lastly, conclusions, limitations and directions for future research are presented.

2. Literature review and hypotheses

This section reviews the literature in relation to service quality, customer satisfaction and the differences in study mode evaluations of service performance.

2.1. Service quality and customer satisfaction in higher education

2.1.1. The concept of quality in higher education

Generally, service quality is the overall evaluation of service by either a customer or any other stakeholder as he/she passes judgement as to whether or not the service meets/exceeds expectations (Eshghi, Roy, & Ganguli, 2008). In other words, the customer is asking herself/himself if the service is fit for purpose. Besides facilitating retention of current customers, perceptions of high service quality help to attract new ones as a result of positive recommendations to other stakeholders, e.g., prospective students, employers, guardians, sponsors and regulators (Ladhari, 2009; Negi, 2009). This entails that universities operating in a competitive environment have to consider how to deliver high-quality service to meet and exceed the needs of stakeholders (DeShields & Kara, 2005; Joo, 2017). No wonder institution-wide student feedback about the quality of the service experience is an area of growing activity in universities globally (Cardona & Bravo, 2012; Zineldin, Akdag, & Vasicheva, 2011).

2.1.2. Service quality frameworks in higher education

To help examine service quality in universities, some studies have used SERVQUAL (Service Quality) model developed by Parasuraman, Zeithaml, and Berry (1988). The authors suggest that service quality can be measured using five key dimensions, i.e., reliability, assurance, tangibility, empathy and responsiveness (Parasuraman et al., 1988). The service quality level is thus evaluated by comparing customer perceptions with expectations. While customer perceptions are subjective evaluations of actual service experiences, expectations are reference points against which actual service is judged (Brochado, 2009). Despite its popular application, the SERVQUAL model has been criticised by some scholars for its shortcomings at both conceptual and operational levels (Buttle, 1996). To overcome the shortcomings, the SERVPERF (Service Performance) model was developed. The SERVPERF model is a variant of the SERVQUAL model that embraces a performance-based approach in measuring service quality by focusing only on perceptions.

More recently, some other frameworks have been suggested in a quest to improve accuracy in assessing university service quality. Icli and Anil (2014) proposed a new scale, called HEDQUAL (Higher Education Quality), which has only been assessed in Master of Business Administration (MBA) programmes. As key dimensions, the scale focuses on academic quality, administrative service quality, library service quality, quality of providing career opportunities and supporting services (Icli & Anil, 2014). Other studies have employed the HEDPERF model, which is a 41-item scale focusing not only on academic aspects but also on the service environment (Khaola, 2010). The authors conceptualise academic quality as comprising five factors, namely, non-academic aspects, academic aspects, reputation of learning institution, access and programme issues. Another framework proposed is the 5Qs comprising quality of object, quality of process, quality of infrastructure, quality of interaction and communication, as well as quality of atmosphere (Zineldin et al., 2011). Quality of object implies the education services or the reason students are studying while quality of process refers to how the object is delivered. Whereas quality of infrastructure focuses on the basic resources needed to deliver educational services, the quality of interaction and communication alludes to the relationships between the institution and the students. Lastly, quality of atmosphere refers to trust, security and competitive positioning reflecting the institution.

Despite the lack of consensus in measurement methodologies for service quality in higher education, the SERVQUAL framework has been widely recognised and applied to assess quality from the students' perspective (Abili & Thani, 2012; Saadati, 2012). However, comparing the two most popular models, i.e., SERVQUAL and SERVPERF, research has empirically tested and proven the latter to be a better measure of service quality (Adil & Ghaswyneh, 2013; Brochado, 2009). In addition, some scholars suggest that the SERVPERF model is appropriate if the objective is to determine causal relationships for service quality dimensions (Dabholkar, Shepherd, Thorpe, Shepherd, & Thorpe, 2002). Based on these reasons, the present research employed the SERVPERF model to assess quality in higher education.

Studies exploring higher education quality suggest that perceived service quality positively influences student satisfaction and loyalty (Cardona & Bravo, 2012; Naik et al., 2010). Recently, Mwiya et al. (2017) explored the Zambian context regarding the influence of service quality on customer satisfaction. Besides Sultan and Wong (2018) in Australia and Douglas et al. (2006) in the UK who find no moderating influence of study modes in the service quality-satisfaction link, there is a shortage of studies extending service quality perceptions into the under-researched phenomenon of study mode differences. This study aims at filling this gap by testing one of the many higher education quality models, i.e., SERVPERF in relation to study mode differences among senior undergraduate students.

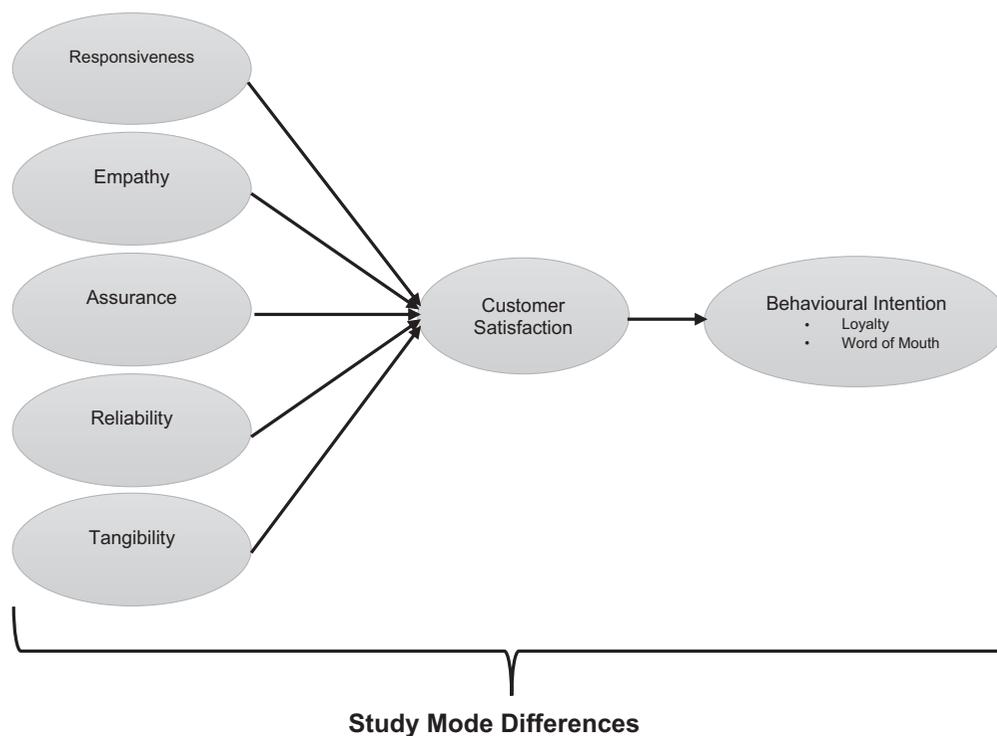
2.2. Service quality, customer satisfaction and behavioural outcomes

2.2.1. Service quality and customer satisfaction

Extant literature indicates that quality of a service is an antecedent to overall satisfaction for students (Parasuraman et al., 1994; Zineldin, 2007). Jager and Gbadamosi (2010) posit that quality of service affects students' overall experience and success of programmes as it ensures continued students' patronage. A recent study by Jiewanto, Laurens, and Nelloh (2012) also concluded that service quality has a positive impact on student satisfaction. Further, previous research shows that there is a relationship between service quality dimensions and behavioural outcomes (Jager & Gbadamosi, 2010; Jiewanto et al., 2012). For instance, in Jordan, Twaissi and Al-Kilani (2015) studied the impact of perceived service quality on students' behavioural intentions and found that the perceived reliability, tangibility and assurance dimensions had an effect on the students' intentions to recommend their university to others.

The foregoing studies have indisputably provided insights on service quality and satisfaction assessments with regard to higher education institutions. These insights are very critical for all

Figure 1. Study Mode Differences in Service Quality and its Consequences.



higher education institutions, especially in the under-researched Zambian context. Further, it can be noted that irrespective of the service quality framework employed, most studies conclude that there is a relationship between service quality and student satisfaction with their institution. For this reason, the current study posits that service quality will have an effect on students' satisfaction. Accordingly, in Figure 1, Service quality dimensions (responsiveness, empathy, assurance, reliability and tangibility) are conceptualised as independent variables and student satisfaction as a dependent variable.

According to Parasuraman et al. (1988), firstly, responsiveness refers to the willingness to help students and provide prompt service while, secondly, reliability is the perceived ability to perform the promised service dependably and accurately. Thirdly, assurance connotes the perceived employees' knowledge and their ability to inspire trust and confidence. Fourth, tangibility refers to the appearance of physical facilities, equipment, personnel, and written materials. Lastly, empathy is the caring, individualised attention given to students. Based on empirical research, scholars in Australia (Arambewela & Hall, 2006), Pakistan (Kundi, Khan, Qureshi, Khan, & Akhar, 2014), Malaysia (Wei & Ramalu, 2011), Indonesia (Jiewanto et al., 2012) and Zambia (Mwiya et al., 2017) establish that responsiveness, empathy, reliability, assurance and tangibility are antecedents of student satisfaction. Therefore, this study hypothesises as follows:

H₁: Each of the Service Quality dimensions (tangibility, assurance, reliability, empathy, and responsiveness) is positively related to Student Satisfaction

2.2.2. Student satisfaction and behavioural intentions

Scholars in marketing indicate that there is a nexus between customer satisfaction and customer loyalty (Walsh, Mitchell, Jackson, & Beatty, 2009). This is because a firm that consistently provides good quality products helps to reduce perceived risks in the minds of the customers and therefore reduces the need for customers to search for alternative service providers. This reduces transaction costs. Based on German energy customers, Walsh et al. (2009) adduce evidence that the resulting customer loyalty is reflected in repeat business. In addition, other scholars (Sundaram,

Mitra, & Webster, 1988) in the USA adduce evidence from customers of automobile and electronic products that, based on experience with the physical goods of the firm, consumers engage in positive word of mouth for various reasons including helping the recipient of the information; helping the entity that provides high-quality products and positive service experience; and penalising the firm that does not give a positive service experience. This study extends these concepts of loyalty and positive word of mouth to the university service context. When it comes to university students, it is expected that those students who express satisfaction with the service offered by their university, would also express loyalty to the university and engage in positive word of mouth to others about the university. Practically, this entails that loyalty will be reflected in the intention to pursue further studies with the same university and positive word of mouth would be reflected in the intention to recommend the university to other people such as friends and relatives. Therefore, the study suggests as follows:

H₂: Student Satisfaction is positively related to Loyalty to the University (i.e., intention to participate as alumni, return for postgraduate studies, etc.)

H₃: Student Satisfaction is positively associated with positive word of mouth about the university

2.3. Service quality, customer satisfaction and study mode differences

In addition to the foregoing well-established postulations in the literature in relation to service quality and customer satisfaction, this study further suggests that there will be differences in perceptions of service quality and, therefore, the level of satisfaction based on the mode of study for each student. Some students are full time, i.e., they spend morning and afternoon each day of the academic calendar in school to the exclusion, mostly, of other career activities. Other students engage in their academic activities only in the evening after working hours, e.g., after 5pm. The majority of such students have full-time or part-time jobs during the day and only attend to academic activities over the weekends and after work hours in the work-week. Lastly, there is a group of students that engage in distance education, once they are enrolled they carry out their studies in different locations of the country after receipt of module materials from the university. Such students study on their own and post or upload their assignments during the academic year. In addition, such students interact with lecturers mainly during a few weeks of residential school when preparing for examinations. These are usually self-sponsored individuals who are in full-time employment.

In a study limited to the Australian context, Sultan and Wong (2018) find that study mode does not moderate the influence of service quality on student satisfaction. This empirical finding notwithstanding, the current study suggests that there is still a need for further exploration on study mode differences in service quality perceptions because of some sound theoretical underpinnings. Firstly, because the resource-based view of the firm indicates that firms with access to more resources will outperform those who have less resources (Penrose, 1959), it follows that even at the personal level, individuals with more resources will outperform those with less resources. Secondly, human capital theory (Becker, 1962) suggests that individuals who have more knowledge, experience, relevant habits and skills in any discipline/career will outperform those who have less. This paper suggests that these theories can be applied to differences in study mode perceptions of service quality and performance. Full-time students, because of the amount of time they spend in school, engage with the educational activities more than evening and distance students. Therefore, full-time students are expected to outperform the others both in the outcomes of education and perceptions thereof. This study theorises that full-time students are more likely to perceive higher service quality in all dimensions and therefore are more likely to be satisfied because they have more time resources to interact with administrative and academic staff as well as other university facilities. Additionally, such students have more time to consult lecturers; more time to interact with the course materials and therefore delve deeper in each subject; and, they have more time to develop social support mechanisms necessary for academic success. Based on the foregoing discourse, the study posits as follows:

H₄: Perceived Service quality and satisfaction are higher for full time than evening or distance students

Based on the foregoing hypotheses, the conceptual Model in Figure 1 reflects the direction of influence in the relationships being explored.

3. Methods and measurement

3.1. Population, sample and data collection

The purpose of this study was not only to examine the relationship between each of the five dimensions of higher education service quality and customer satisfaction but also to explore the study mode differences. As such it employed a quantitative survey design (Creswell, 2012; Saunders, Lewis, & Thornhill, 2009). Prior studies exploring service quality in higher education in Colombia (Cardona & Bravo, 2012), Jordan (Twaissi & Al-Kilani, 2015) and Portugal (Brochado, 2009) have used similar approaches. In line with extant literature highlighting the need for universities to have ongoing mechanisms to obtain institution-wide student feedback about the quality of their educational experience (Cardona & Bravo, 2012), this study focused on the student population of one of the oldest and largest public universities in an under-researched developing country context of Zambia.

Mindful of external validity, with a total student population of 12,000 (final year undergraduate students at 3000), the minimum required representative sample size would be 341, at a confidence level of 95% and margin of error of 5% (Saunders et al., 2009, p.212, p.585). To reduce the likelihood of low response rate, 1000 questionnaires were distributed; 824 were fully completed and returned to the researchers, representing 82.4% response rate. Senior students were particularly targeted because they had been at the university for more than 3 years and so they had more experience with the quality of various services. Additionally, impending graduation compels them to consider whether to start looking for employment or pursue further studies and at which university.

The study employed proportionate stratified sampling in selecting the sample elements based on different study modes. As for data collection, a survey was undertaken by using a self-administered questionnaire. With the help of faculty members, the questionnaire was distributed to students before the commencement of class and was collected at the end of the class. Before administering the questionnaire, the purpose of the study was explained to the respondents and then for those willing to participate, informed consent was signed by the participants prior to data collection. The resulting sample profile is given in Table 1 showing 468 full-time (57.2%), evening (23.3%) and distance students (19.4%), 49.2% female and 50.8% male. The majority of respondents were senior students. The gender percentages and the average age at 27.3 years in the sample are typical of university students in Zambia (Mwiya, Wang, Kaulungombe, & Kayekesi, 2018).

Table 2 shows that while the majority (96.40%) of full-time students are below the age of 28, most of the distance students are above the age of 28 (52.10% above 28 and 17.40% above 38). The evening students are also mainly above the age of 28 (36.90% above 28 and 15.40% above 38). These statistics entail that full-time students are more likely to be younger while evening and distance students are more likely to be older. This relationship is significant with a large effect size¹ (Chi-square (df, 4) = 333.914, $p = 0.0005$, Cramer's $V = 0.461$).

3.2. Measurement model validity

To assure internal validity, the questionnaire comprised 27 items adapted from prior similar studies in Portugal, South Africa, and Jordan (Brochado, 2009; Cronin & Taylor, 1994; van Schalkwyk & Steenkamp, 2014). The questionnaire comprised the 22 items on the five dimensions of higher education service quality. Additionally, there was one item on overall customer satisfaction ("I am

Table 1. Respondents' profile

Characteristic	Description	Frequency	Percent	Valid Percent
Gender	Female	403	48.9	49.2
	Male	416	50.5	50.8
Study Mode	Full Time	468	56.8	57.2
	Distance	191	23.2	23.3
	Evening	159	19.3	19.4
Study Year	1	7	0.8	0.9
	2	22	2.7	2.7
	3	232	28.2	28.4
	4	444	53.9	54.3
	5	109	13.2	13.3
	6	4	0.5	0.5
Age (years)	Mean	27.3		

Table 2. Age vs study mode cross-tabulation

Mode	Count	Below 28	28 to 38	Above 38	Total
Full Time	Count	431	10	6	447
	% within Study Mode	96.40%	2.20%	1.30%	100.00%
	% within Age Group	77.00%	6.10%	9.70%	56.90%
	% of Total	54.80%	1.30%	0.80%	56.90%
Distance	Count	58	99	33	190
	% within Study Mode	30.50%	52.10%	17.40%	100.00%
	% within Age Group	10.40%	60.40%	53.20%	24.20%
	% of Total	7.40%	12.60%	4.20%	24.20%
Evening	Count	71	55	23	149
	% within Study Mode	47.70%	36.90%	15.40%	100.00%
	% within Age Group	12.70%	33.50%	37.10%	19.00%
	% of Total	9.00%	7.00%	2.90%	19.00%
Total	Count	560	164	62	786
	% within Study Mode	71.20%	20.90%	7.90%	100.00%
	% within Age Group	100.00%	100.00%	100.00%	100.00%
	% of Total	71.20%	20.90%	7.90%	100.00%

satisfied with overall educational experience at this university”). Further, two items were included to assess the behavioural intentions of loyalty (“I intend to later come back and pursue my postgraduate studies at this University“, and “After I graduate, I Intend to participate and financially contribute to the Alumni initiatives to help my University“). Lastly, two items were included regarding the likelihood of spreading positive word of mouth about the institution (‘I would recommend to employers to employ graduates from my University’ and ‘Based on my experience at the University, I would recommend this University to my friends and family’). All the items were gauged on a 5-point Likert scale ranging from 1 = “strongly disagree” to 5 = “strongly Agree”. The questionnaire was pilot tested before mass distribution to ensure that the questions were clear and where necessary correctly rephrased.

Factor analysis was performed (since the sample was >150) to establish unidimensionality of constructs and validity of the independent variables (Cohen, 1988; Pallant, 2016). Specifically,

exploratory factor analysis with principal components extraction and Varimax rotation was conducted. The assumptions for factorability of the data (with correlation coefficients above 0.30) were fulfilled since the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.945 (minimum value required 0.60), and Bartlett's Test of Sphericity was significant (Approx. Chi-square =

Table 3. Factor and reliability analyses for constructs

Items	Components				
	1	2	3	4	5
Tangibility	0.633				
My university has up to date equipment	0.633				
My university has physical facilities (e.g., buildings and furniture) that are attractive, visually appealing and stylish	0.557				
Personnel at my university are well dressed and neat at all times	0.773				
The materials at my University (e.g., pamphlets and study material) suit the image of the university	0.654				
Reliability					
when my university promises to do something by a certain time, it does so		0.688			
When the students have problems, the personnel of my university are sympathetic and reassuring		0.741			
My University is dependent and provides the service correctly the first time		0.696			
My University provides services at the time promises it promises to do so		0.709			
My University keeps its records accurately (e.g., accounts, academia reports, Student's results etc.)		0.712			
Responsiveness					
My University tells students when services will be rendered			0.694		
Students receive fast (prompt) service delivery from the University personnel			0.753		
Lecturers at my University are willing to assist students			0.765		
Personnel of the University are not too busy to respond to students' requests promptly			0.674		
Assurance					
Students are able to trust the personnel of the University				0.523	
Personnel at my University inspire confidence				0.538	
Personnel at my University are polite				0.640	
Personnel receive adequate support from my University management to improve the performance of its services				0.745	
Empathy					
Students receive individualized attention from administrative personnel (e.g., doing something extra for students).					0.780
Lecturers give students individual attention					0.674
Personnel at my University know what the needs of their students are (e.g., recognizing students as clients)					0.649
The University personnel have the students' best interest at heart.					0.672
The University personnel are easily accessible to students (e.g., available to see or to contact by phone, email etc.)					0.714
Eigenvalues	9.621	1.729	1.105	1.003	1.001
Variance Explained (64.680%)	21.897	17.247	9.154	8.619	7.772
Cronbach's Alpha	0.763	0.852	0.708	0.830	0.869

7130.496, $df = 23$, $p = 0.000$). The cumulative percentage variance explained was 64.7%. To check for consistency and stability of items, Table 3 illustrates the factor loadings resulting in clear five dimensions of service quality with Eigenvalues above 1. All Cronbach's Alpha values were above the minimum threshold of 0.70 (Pallant, 2016).

Prior to further bivariate and multivariate analyses, checks for missing data, outliers and normality were conducted on the scale data. Descriptive statistics revealed that missing data for the variables and respondents ranged between 1.2% and 3.3%. Missing data under 10% for each respondent or variable can generally be ignored because it does not have a significant adverse effect on any analyses. With regard to outliers, inspection of box plots and comparison of actual means with the 5% trimmed means for the variables revealed no extreme scores with a strong influence on the means (Pallant, 2016). In relation to normality for all variables, kurtosis and skewness were within the acceptable ± 1 range for psychometric tests (George & Mallery, 2003).

4. Results

4.1. Correlation analyses

Pearson correlation analyses were performed to assess the direction and strength of relationships among all variables. Table 4 presents the correlations, means and standard deviations of the dependent variables (overall customer satisfaction, positive word of mouth and loyalty) and independent variables (perceived responsiveness, perceived empathy, perceived assurance, perceived reliability, and perceived tangibility). The results in Table 4 show relatively low correlations among variables (all of them below 0.8). This entails that multicollinearity is not a problem (Tabachnick & Fidell, 2012).

Firstly, Table 4 indicates that student satisfaction is positively significantly correlated (all sig. ≤ 0.01) with each service quality dimension of university education, i.e., tangibility ($r = 0.377$), reliability ($r = 0.328$), assurance ($r = 0.331$), empathy ($r = 0.296$) and perceived responsiveness ($r = 0.304$). The effect sizes are generally medium based on Cohen's criteria, i.e., small = 0.10 to 0.29, medium .30 to .49 and large = 0.50 to 1.00 (Cohen, 1988). Secondly, the significant positive correlations indicate that the higher the level of customer satisfaction, the higher the level of loyalty ($r = 0.460$, $p < 0.01$ with medium effect size, $r^2 = 0.212$) and positive word of mouth ($r = 0.549$, $p < 0.01$ with large effect size, $r^2 = 0.301$). This supports H_1 , H_2 and H_3 , which postulate that customer satisfaction is positively related to student loyalty and positive word of mouth recommendations. This means that individuals who are satisfied with the education service at the university are more likely to encourage friends and relatives to pursue their studies at the same university and they are also more likely to encourage employers to employ graduates from that university. Similarly, students who are satisfied with the education service are more likely to intend to return to the same university to pursue further studies or support the university as part of the alumni.

4.2. One-way analysis of variance (ANOVA)

To evaluate the study mode differences in service quality perceptions, one-way analyses of variance technique was used. One-way ANOVA helps to examine whether there are significant differences in the mean scores on the dependent variables across the three groups (Pallant, 2016). Post-hoc tests can then be used to find out where these differences lie. Table 5 shows the ANOVA results and post-hoc results. Levene's test for homogeneity of variances, which tests whether the variance in scores is the same for each of the three groups show that the significance value is greater than 0.05 for all service quality dimensions, customer satisfaction, loyalty and Positive Word of Mouth. This means that the data has not violated the assumption of homogeneity of variance. In relation to the ANOVA statistic, for example, $F(2, 806) = 41.098$, $p = 0.005$ for perceived tangibility, the significance values are all less than or equal to .05. This means that there is a significant difference somewhere among the mean scores on the dependent variables for the three groups. The effect sizes² for the differences in service

Table 4. Correlation matrix

#	Variable	Mean	Std. Dev	N	1	2	3	4	5	6	7
1	Positive Word of Mouth	3.873	0.916	805	–						
2	Loyalty Intentions	3.248	0.940	805	.550**	–					
3	Overall Customer Satisfaction	3.291	1.045	801	.549**	.460**	–				
4	Perceived Tangibility	2.753	0.792	814	.261**	.295**	.377**	–			
5	Perceived Reliability	2.626	0.885	814	.248**	.310**	.328**	.659**	–		
6	Perceived Responsiveness	2.968	0.785	814	.251**	.317**	.304**	.538**	.671**	–	
7	Perceived Assurance	2.846	0.870	813	.280**	.321**	.331**	.549**	.608**	.688**	–
8	Perceived Empathy	2.782	0.888	814	.265**	.274**	.296**	.514**	.584**	.635**	.726**

**Correlation is significant at the 0.01 level (2-tailed).

Table 5. One-way analyses of variance

Dependent Variable	Group	N	Mean	Homogeneity of Variances Tests			Sig.	(I) Group	(J) Group	Mean Diff (I-J)	ANOVA F	Eta Squared
				Levene Stat	df1	df2						
				Stat	df1	df2						
Perceived Tangibility	Distance	190	3.154	2.844	2	806	0.056	Distance	Full Time	.58815*	41.098**	0.09
	Evening	158	2.805					Evening	Evening	.34910*		
	Full Time	461	2.566					Full Time	Full Time	.23905*		
Perceived Reliability	Distance	190	3.173	2.086	2	806	0.072	Distance	Full Time	.71693*	53.997**	0.12
	Evening	158	2.452					Evening	Evening	.72110*		
	Full Time	461	2.456					Full Time	Full Time	-0.00417		
Perceived Responsiveness	Distance	190	3.379	2.923	2	806	0.054	Distance	Full Time	.54373*	37.182**	0.08
	Evening	158	2.856					Evening	Evening	.52250*		
	Full Time	461	2.835					Full Time	Full Time	0.02123		
Perceived Assurance	Distance	190	3.340	2.715	2	805	0.082	Distance	Full Time	.71671*	51.689**	0.11
	Evening	157	2.888					Evening	Evening	.45288*		
	Full Time	461	2.624					Full Time	Full Time	.26383*		
Perceived Empathy	Distance	190	3.304	2.849	2	806	0.087	Distance	Full Time	.72395*	50.852**	0.11
	Evening	158	2.725					Evening	Evening	.57921*		
	Full Time	461	2.580					Full Time	Full Time	0.14474		
								Distance	Distance	-.57921*		

(Continued)

Table 5. (Continued)

Dependent Variable	Group	N	Mean	Homogeneity of Variances Tests				Sig.	(I) Group	(J) Group	Mean		ANOVA	Eta Squared
				Levene Stat	df1	df2	Sig.				Diff (I-J)	F		
Customer Satisfaction	Distance	187	3.487	1.980	2	794	0.139	Distance	Full Time	.35418*	11.651**	0.03		
	Evening	157	3.490					Evening	Evening	-0.00381				
	Full Time	453	3.133					Full Time	Full Time	.35800*				
Loyalty Intentions	Distance	188	3.521	1.404	2	798	0.246	Distance	Full Time	.46536*	22.057**	0.05		
	Evening	157	3.443					Evening	Evening	0.0786				
	Full Time	456	3.056					Full Time	Full Time	.38675*				
Positive Word of Mouth	Distance	188	4.000	1.696	2	798	0.184	Distance	Full Time	.23465*	6.869**	0.02		
	Evening	157	4.013					Evening	Evening	-0.01274				
	Full Time	456	3.765					Full Time	Full Time	.24739*				
								Distance	Distance	0.01274				

* The mean difference is significant at the 0.05 level or ** at 0.01 level.

quality dimensions are medium while the effect sizes for differences in customer satisfaction, loyalty and positive word of mouth are small. This, however, does not tell the reader which group is different from the other groups.

Despite reaching statistical significance, post-hoc comparisons using the Tukey HSD test indicated the actual differences in mean scores between the groups were quite small between 0.0040 and 0.72, i.e., see the column Mean Diff (I -J). This means that H_4 was rejected and a conclusion reached that actually distance and evening students are more satisfied than full-time students. These results mean that, overall, distance students are more satisfied, followed by evening students and the least satisfied are full-time students.

Based on the correlation matrix (Table 4) ANOVA results (Table 5), Table 6 summarises the results of hypotheses testing.

5. Discussion

The findings in this study suggest that perceived responsiveness, empathy, assurance, reliability and tangibility each significantly influence overall customer satisfaction in public universities in Zambia. Customer satisfaction in turn is positively associated with positive word of mouth about the university and loyalty intentions. Therefore, Hypotheses 1 to 3 were supported with medium to large effect sizes. However, in terms of study mode differences in service quality and customer satisfaction perceptions, the findings contradicted the hypothesis; distance and evening students had higher perceptions of service quality and customer satisfaction than full-time students.

This means that the higher the level of perceived good service performance in reliability, tangibility, assurance, empathy and responsiveness to customer needs, the higher the level of customer satisfaction. In turn, customer satisfaction positively influences customer loyalty intentions and positive word of mouth. These findings resonate with prior studies in Colombia (Cardona & Bravo, 2012), Jordan (Twaissi & Al-Kilani, 2015) and Portugal (Brochado, 2009) that found that customer satisfaction is significantly influenced by the five service quality dimensions. This entails that even in collectivist, lower middle-income countries, service quality dimensions are valid predictors of customer satisfaction.

Lastly, contrary to prior research that found no study mode differences (Sultan & Wong, 2018), the finding that distance and evening students are more likely to report satisfaction is very interesting. Among several explanations, this could be because evening and distance students are older (see Table 2). Older individuals may be less over-particular about their choices; probably because they understand the constraints the country and the public university operates under. Another explanation is the notion that Zambia is a collectivist and feminine society with high power distance (Hofstede, 2017). Therefore, older individuals, pressured by society to lead by example, are more likely to conform to norms of society which dictate that one needs to be seen to respect authority and supportive of societal institutions. As a consequence, older individuals would be less inclined to complain about any dissatisfaction with service quality.

Other explanations are also possible. Class sizes are smaller for distance/evening students; hence, interaction with lecturers is higher. Smaller class sizes also entail that distance students get hostel accommodation during residential revision classes while full-time students have to pay high private boarding houses fees. Additionally, distance and evening students have more industry experience thus relate to the material better; full-time students may see the learning material as abstract concepts. It is also plausible that academic and administrative staff treat adult students as high-status individuals who thus deserve more courteous treatment than full-time students. Furthermore, distance students are usually given modules (written materials) specific to the course material to be tested/examined while full-time students have to read more textbooks; full-time students have to buy the recommended books at high prices since they are unavailable in the

Table 6. Hypotheses testing summary of results

#	Hypotheses	Statistic	Test	Results
H1	Service Quality dimensions are positively related to Student Satisfaction	R = 0.296** to .377**	Correlation	Supported
H2	Student Satisfaction is positively associated with Loyalty	R = 0.460**	Correlation	Supported
H3	Student Satisfaction is positively associated with Word of Mouth	R = 0.549**	Correlation	Supported
H4	Perceived Service quality is higher for full time than evening or distance students	F-tests**	ANOVA	Not Supported
	***sig<0.001(0.1 percent)	**sig<0.01 (1 percent)	*sig<0.05 (5 percent)	

libraries. Lastly, distance and evening students see the immediate benefit of education because, for those already employed, promotion may be in the offing upon graduation.

5.1. Limitations and future study

Being a cross-sectional study, this research could only offer a snapshot of the phenomenon. Thus, only correlation rather than causality can be inferred. In future longitudinal studies conducted annually as an all-encompassing, holistic and recognised higher education service quality evaluation system would help institutions to assess and monitor their service quality performance. Additionally, since the sample was limited to one public university, in future a sample drawn from public and private universities would improve the generalisability of the conclusions. This would also help compare service quality and customer satisfaction between private and public universities. Qualitative studies would help unearth the reasons why distance and evening students are more satisfied than full-time students.

5.2. Managerial implications

The findings have implications for scholars, university managers and policymakers. It is clear that the service performance model (SERVPERF) is a valid and useful framework for assessing and monitoring how the primary stakeholders form their service quality perceptions of higher education. Therefore, customer satisfaction is a function of perceptions of performance in the service quality dimensions of tangibility, reliability, responsiveness, assurance and empathy. In turn, students who are satisfied with the education service are more likely to pursue further studies at the same university, support the university as alumni and engage in positive word of mouth to friends, family, employers and other stakeholders about the university. In terms of study mode, distance and evening students are actually more satisfied. This implies that more school levers could be encouraged to consider distance and evening modes; this is especially important because national statistics show that only 10% of the school levers find space to be enrolled into universities and colleges every year in Zambia. The last implication is a provocative question as to whether full-time students are being short-changed or not; they spend more time on education activities and yet are the least satisfied. A comparative exploration of study mode differences in academic results would also put the study mode differences in service quality perceptions into better perspective.

6. Conclusions

The purpose of this research was twofold. Firstly, it sought to apply the service performance (SERVPERF) model in a Zambian context and determine the influence of each service quality dimension on overall service satisfaction. Secondly, the study sought to explore study mode differences in service quality dimensions and customer satisfaction. The study was based on a quantitative survey design where primary sample data were collected from 824 senior undergraduate students at one public university in Zambia. The main findings indicate that each of the five dimensions of service quality performance dimensions (tangibility, reliability, responsiveness, empathy and assurance) are significantly and positively related to overall customer satisfaction, which in turn is related to loyalty and positive word of mouth. Lastly, the findings indicate that distance and evening students are more satisfied and report higher perceptions of service quality dimensions than full-time students.

The contributions of this research are twofold. Firstly, prior studies exploring service quality in higher education in Colombia (Cardona & Bravo, 2012), Jordan (Twaissi & Al-Kilani, 2015), Italy (Petruzzellis, D'Uggento, & Romanazzi, 2006) and Portugal (Brochado, 2009), suggest that customer satisfaction can be explained by perceived service quality. However, African countries are under-researched and this limits the generalisability of research conclusions. In fact, hitherto, literature with a Zambian context is non-existent save for Mwiya et al. (2017). The consequences of shortages of research in the Zambian context entails that stakeholders have no basis for developing strategies and setting resource allocation priorities to improve service quality based on context-specific conclusions. Therefore, this study has contributed to filling this contextual gap in knowledge, thus extending the generalisability of prior research conclusions and improving external validity (Eden, 2002; Evanschitzky et al., 2007; Miller & Bamberger, 2016). Indeed, the

study has confirmed the applicability of the SERVPERF model in a collectivist, high power distance, feminine and lower middle-income country like Zambia.

Secondly, besides inconclusive and insignificant results from Sultan and Wong (2018) in Australia and Douglas et al. (2006) in UK who explore the possible moderating role of study modes on the service quality and customer satisfaction relationship, the current study is among the pioneers to examine the study mode differences with significant results. Specifically, distance and evening students are more satisfied than full-time students. The study also contributes evidence that older individuals in a collectivist, high power distance and feminine society are more likely to report customer satisfaction. This is perhaps because they are more likely to feel pressure to conform to the norms of society and to be seen to be supportive of societal institutions. Consequently, older individuals would be less inclined to complain about dissatisfaction with service quality.

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Notes

1. Cohen (1988) guide on chi-square effect sizes small = 0.07, medium = 0.21, large = 0.35.
2. Cohen (1988) classified Eta Squared .01 as a small effect, .06 as a medium effect and .14 as a large effect.

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