A COMPARATIVE ASSESSMENT OF THE PREDICTIVE POWER AND DIAGNOSTIC ABILITY OF THE SERVQUAL AND SERVPERF SCALES IN THE HIGHER EDUCATION CONTEXT OF TANZANIA

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ABSTRACT

The debate over which instrument is a better measure of service quality, between the disconfirmation-based SERVQUAL scale and the performance-based SERVPERF scale, is not over yet. While a number of studies have attempted to compare the two scales, and have concluded that the SERVPERF is a better measure of service quality, these studies have mostly focused on psychometric properties of the two alternative scales. The comparison of predictive power and the diagnostic ability of the two scales have not received adequate attention. Since the ideal service quality measuring instrument is one that is not only psychometrically sound, but is also diagnostically robust enough to identify specific service quality flaws for improvement, this study assesses and compares predictive power and diagnostic ability of the two scales in the higher education context of Tanzania. Based on the sample of 500 university students, the study concludes that, the SERVPERF scale is a superior scale in terms predictive power, while the SERVQUAL scale is superior in terms of diagnostic ability. It is recommended that, when the interest is only to assess the overall service quality, the SERVPERF scale should be preferred. On the other hand, when the interest is to identify service quality shortfalls for improvement, the SERVQUAL scale should be employed.

KEYWORDS

Diagnostic Ability, Higher Education, Predictive Power, Service Quality, SERVQUAL, SERVPERF.

1.0 INTRODUCTION

In recent years, higher education environment has undergone dramatic changes all over the world, Tanzania being no exception. Higher education institutions are currently facing an increased competition, both in the home country and globally (Hoe, 2005). This is due to the fact that, more new programmes are offered, new delivery means of existing programmes are introduced (distance learning or e-learning), new institutions are established (both public and private), internationalization of higher education, as well as a reduction in government funding (Faganel, 2010).

Given the current environmental trends, higher education institutions must realize that they are entities competing for resources and students, both in the local and international market (Paswan and Ganesh, 2009). Thus, they must strive to deliver superior service quality and satisfy their students in order to achieve a sustainable competitive advantage (DeShields et al., 2005). In other words, higher education institutions must address service quality as a core business just like any other business organizations.

In order to achieve superiority in service quality and realize its benefits, higher education institutions must have the means to measure it. Two of the most valid and reliable measurement instruments used in the evaluation of service quality are the SERVQUAL and SERVPERF scales. Despite the wide application of these scales for measuring service quality across different service sectors, controversy continues to exist as to which one of these more accurately measures service quality

(Vanpariya and Ganguly, 2010). Thus, there appears to be a problem of choice when selecting an appropriate scale to measure the quality of a service (Hoe, 2005). A few studies have empirically tested the relative measuring ability of the two scales across different service sectors (e.g. Ladhari, 2008; Lee, 2007). These studies have mostly reported the superiority of the SERVPERF scale. Although an attempt has been made to solve this controversy, these studies have mostly focused on evaluating the psychometric properties of the scales (reliability and validity issues) in the commercial sector in the developed countries. The predictive and diagnostic powers of the scales have not been clearly explained and compared. According to Parasuraman et al. (1994), an ideal service quality measurement scale is one that is not only psychometrically sound, but is also diagnostically robust enough to identify specific service quality flaws for improvement.

The purpose of this study was to assess and compare the predictive and diagnostic powers of the SERVQUAL and SERVPERF scales in order to determine the superior scale, particularly in the higher education context of Tanzania.

2.0 METHODS

2.1 The Modification of SERVQUAL Scale

The 22 service quality items in the original SERVQUAL scale were modified to fit the higher educational process. For example, that item of the SERVQUAL instrument that states "XYZ has modern looking equipment" was modified for the item on the modified SERVQUAL instrument to read as "Classrooms at XYZ have up-to-date teaching support equipment". This was consistent with authors' guidelines for using SERVQUAL (Parasuraman et al., 1991).

In addition, Parasuraman et al. (1993) propose that, the 22-SERVQUAL items be supplemented with context specific items when necessary. This is due to the fact that, there might be sector specific dimensions that are closely related to the nature of the service sector. In view of this, 23 new items to measure important aspects of service quality in higher education were incorporated into SERVQUAL. The 23 new items were generated from the literature review and various qualitative research inputs, namely: focus groups, pilot test and expert validation. Literature review and qualitative research have been used to develop new SERVQUAL items (Cavana et al., 2007; Tsoukatos, 2007).

Focus group interviews were conducted with third year undergraduate students, conveniently selected from different degree programmes in both universities under study. Convenience sampling was adopted because of the exploratory nature of this phase of the study. Third year students were considered to be experienced and pretty familiar with the university services, thus being likely to give more realistic expectations and perceptions of service quality. Two focus group interviews were conducted in each of the two universities under study with eight participants each, and a researcher as the moderator. This was consistent with the recommendation of Ghauri and Gronhaug (2010) that, a focus group should have between six and ten participants. Each focus group interview lasted approximately between one hour and one and a half hours in duration which was consistent with most researchers' recommendations. Specifically, focus group interviews were conducted to identify whether the factors suggested as having an influence on perceived service quality from the literature review, can be generalized to the context of higher education, and to generate additional items to measure the service quality of higher education, that covers all aspects of the services that students are receiving. In view of this, the participants in the focus groups were asked to: (1) identify the physical and service needs of students during their studies at the university, (2) describe the meaning of service quality as it relates to students, and (3) describe the ideal service experience and expectations about the service experience at the university. This process resulted in the modified SERVQUAL instrument with 45-items under the same five dimensions of service quality: Tangibles (sixteen items), Reliability (six items), Responsiveness (six items), Assurance (eleven items) and Empathy (six items).

2.2 Data Collection

The study employed the SERVQUAL and SERVPERF scales, with appropriate modifications explained above for an educational setting, to collect data. The survey was conducted in two purposively selected public universities in Tanzania. Respondents were systematically selected and a total of 250 students from various degree programmes in each of the selected universities were selected for participation in this study. Both scales were pre-tested and had reliability coefficients (Cronbach's alpha coefficients) greater than 0.70 recommended by Nunnally (1988). All measures were based on a 7-point Likert-type scale. The questionnaire took about 20 minutes to complete. It is important to note that, the names of the universities under study have not been mentioned in connection to the data collected because it was agreed as a condition during data collection.

2.3 Data Analysis

To measure and compare the predictive ability of the SERVQUAL and SERVPERF scales in explaining the variation in the overall service quality, responses to 45 scale items of the modified SERVQUAL and SERVPERF scales were regressed with the overall service quality, directly measured through a single-item scale, as suggested by Cronin and Taylor (1992). The regression model specifically considered the students' global assessment of service quality (overall service quality) as a dependent variable, and the perceived service quality (as measured by each of the two alternative scales) as an independent variable. A multiple regression analysis was subsequently conducted using AMOS 20 computer software to evaluate how well these scales predict service quality levels across all the three data sets (university A, B, and the combined sample).

The adjusted coefficients of determination (adjusted R^2) of the two scales were then compared. The adjusted R^2 was used for comparison rather than the coefficient of determination (R^2) because the adjusted R^2 value offers a more valid indication of predictive power than the R^2 value by taking care for the correction of degrees of freedom (Hoe, 2005). The scale with the higher adjusted R^2 value is the better scale with regard to predictive power (Cronin and Taylor, 1992).

To assess diagnostic power of the SERVQUAL and SERVPERF scales, an interpretive method was employed. This analysis was based on the mean scores for performance perceptions, service expectations, and gap scores for university A, on scale items 3, 10, 18, and 34, namely: classrooms have up-to-date teaching support equipment; computer labs provide high speed internet access; sincere interest in solving students' problems; and university image and prestige, respectively. The mean scores were computed with the help of SPSS (version 19.0). The scale that identifies critical service quality deficiencies that require immediate attention is the better scale.

3.0 RESULTS AND DISCUSSION

3.1 Predictive Power of the SERVQUAL and SERVPERF Scales

The study findings demonstrate that, the performance-based SERVPERF model explains more of the variation in the overall service quality level than the disconfirmation-based SERVQUAL model in higher education. This was evidenced by the higher adjusted R^2 values for the SERVPERF scores, compared to the adjusted R^2 values for the SERVQUAL scores, consistently across all the three samples under study (university A, B, and the combined sample). For example, the adjusted R^2 values were 0.24 and 0.17 for SERVPERF and SERVQUAL respectively for university A (Table 1). Likewise, the adjusted R^2 values were 0.49 and 0.44 for SERVPERF and SERVQUAL respectively for university B, as shown in Table 1. A similar trend was also observed for the combined sample, where the adjusted R^2 values were 0.29 and 0.24 for SERVPERF and SERVQUAL respectively, as depicted in Table 1.

Table 1: Regression Analysis Results on Predictive Power

Independent Variables	Standardized Regression Coefficients							
	University A		University B		Combined Sample		Average Values	
	P-E	P	P-E	P	P-E	P	P-E	P
Non-tangibles	0.46	0.55	0.53	0.46	0.26	0.31	0.42	0.44
Tangibles	0.01	0.02	0.28	0.32	0.13	0.21	0.14	0.18
Adj. R^2 Value	0.17	0.24	0.44	0.49	0.24	0.29	0.28	0.34

Note: P-E stands for SERVQUAL model; P stands for SERVPERF model.

Dependent Variable: Overall Service Quality (7-point scale).

Predictors: (Constant), Non-tangibles, Tangibles (2-factors exhibited by the modified SERVQUAL scale).

All values are significant at p = 0.000.

On average, the linear combination of the two dimensions of the SERVPERF (adjusted R^2= 0.34) explained 34% of variance in the overall service quality level, while the linear combination of the two dimensions of the SERVQUAL (adjusted R^2= 0.28) explained only 28%, as shown in Table 1. These findings conform to those reported by Brochado and Marques (2009) and Jain and Gupter (2004). These studies have found out that, the percentage of variance of the overall service quality level accounted for by the SERVQUAL scale was much lower than the percentage of variance of the overall service quality level accounted for by the SERVPERF scale. The results provide evidence that, there is no necessity to measure expectations when evaluating customers' perceptions of service quality.

3.2 Diagnostic Power of the SERVQUAL and SERVPERF Scales

The results of the analysis of diagnostic ability of the SERVQUAL and SERVPERF scales for identifying specific service quality flaws for improvement are presented in Table 2.

Table 2: Specific Service Quality Shortfalls Suggested for Improvement

Scale Item	Item Description	Mean Scores		
		Expectations	Perceptions (SERVPERF)	Gap (SERVQUAL)
3	Classrooms at this university have up-to-date teaching support equipment.	6.98	5.18	-1.80
10	Computer labs at this university provide high speed internet access.	6.27	5.02	-1.25
18	When a student has a problem, this university shows sincere interest in solving it.	6.03	5.07	-1.12
34	This university has a high image and prestige within this country.	6.40	6.52	0.08
Action areas in order of priority			10,18,3,34	3,10,18

Note: Customer expectations and perceptions of each service quality item were measured on a 7-point Likert scale ranging from 7 for 'strongly agree' to 1 for 'strongly disagree'.

Table 2 indicates that, the university has good performance in respect of all service areas (scale items 3, 10, 18, and 34), when measured with the SERVPERF scale since the mean scores for these items were above 5. However, when compared with the maximum possible attainable value of 7 on a 7-point Likert scale used in this study, the university seems deficient in respect of all the four service areas, suggesting service quality improvement in all these areas. But, due to resource constraints, these deficient areas would be prioritized on the basis of magnitude of performance scores as: 10, 18, 3, and 34. That is, the lower the performance scores, the higher the priority for improvement, as shown in Table 2.

On the other hand, when the items were measured with the SERVQUAL scale, the areas with zero or positive gaps did not call for any managerial intervention, since they imply either customer satisfaction or delight with the service provision. However, the areas with negative gaps imply customer dissatisfaction, which require improvement (Parasuraman et al., 1998). Thus, for the SERVQUAL scale, only three scale items (3, 10, and 18) had negative gaps which required improvement. Again, given resource constraints, the order of priority would be determined by the magnitude of gap scores as: 3, 10, and 18. That is, the higher the gap, the higher the priority for improvement, as shown in Table 2.

In view of the above results, it can be concluded that, both scales possess diagnostic power to identify specific service quality flaws for improvement. Nevertheless, they differ considerably in terms of service areas identified for managerial action, as well as the order of priority in which the actions in the suggested areas are to be taken up for quality improvement.

The possible explanation for this may be due to different reference points used to identify deficiencies in the service quality. For the SERVPERF scale, the reference point is the maximally attainable score of 7 on a 7-point scale, while for the SERVQUAL scale, the reference is customer expectations for each of the service area assessed. Thus, with the SERVPERF scale, the management should strive for attaining the maximally attainable performance level (a performance score of 7 on a 7-point scale) in all those areas of unsatisfactory performance (where performance scores are less than 7). But this makes sense under two situations: (1) when there are no resource constraints, and (2) where all service areas of unsatisfactory performance are equally important to customers, and that those customers want maximally possible quality level in respect of each of the service attribute (Jain and Gupta, 2004).

However, due to resource constraints and the fact that customers do not equally importantly want maximum possible quality levels (Jain and Gupta, 2004); it is necessary to identify areas which are more critical from the customers' point of view and require immediate attention. This can be achieved with the help of the SERVQUAL scale, which focuses on specific service areas where the firm's performance falls below the customers' expectations. For example, item 34 requires managerial intervention as per the SERVPERF scale since the perceived performance level in respect to that item is less than the maximally attainable value of 7 (Table 2). This, however, is not the case with the SERVQUAL scale, because students' perceptions of a university's performance in respect to this item are above their expectations level. Thus, spending efforts and resources in further trying to improve the performance in this area may prove worthless, since the students are already satisfied or delighted (mean perceptions score exceed mean expectations score).

This result is quite in conformity with those established by other studies (Brochado and Marques, 2009; Jain and Gupta, 2004). These studies have reported that, the SERVPERF offers little diagnostic potential and, indeed, may result into inappropriate priorities being established. This implies that, the SERVQUAL scale has more diagnostics, and therefore more practical implications than the SERVPERF scale.

Thus, it is necessary to measure expectations when evaluating students' perceptions of higher education service quality. The inclusion of expectations in measures of service quality provides richer information than do the performance-based measures, and has a greater diagnostic value for managers

(Brochado and Marques, 2009; Jain and Gupta, 2004). It is interesting to note that, even the developers of the performance-only scale (SERVPERF) were cognizant of this fact, and did not suggest that, it is unnecessary to measure customer expectations in service quality research (Cronin and Taylor, 1992). The use of the SERVQUAL scale would give the management a better understanding of whether increasing expectations or diminishing performance might be responsible for declining service quality and student satisfaction.

Overall, comparing the two scales in terms of diagnostic power, the SERVQUAL scale offers a more diagnostic potential than the SERVPERF scale. This is due to the fact that, the SERVQUAL scale does not call for managerial intervention in service attributes where the customer is already satisfied, despite the performance level in respect to that attribute falling short of the maximally attainable service quality score. Therefore, basing on this analysis and discussion, the disconfirmation-based SERVQUAL scale possesses higher diagnostic power than the performance-based SERVPERF scale in identifying critical service quality flaws for improvement in higher education. The implication is that, the inclusion of expectations in the measurement of service quality is crucial, particularly when the objective is to identify critical quality flaws for managerial intervention, given the limited resources available to management.

4.0 CONCLUSION

Based on the study findings, it can be concluded that, the SERVPERF scale is superior in terms of explaining a greater proportion of variance in the overall service quality level in the higher education setting, and accordingly, the performance-based model is the correct conceptualization of service quality. This implies that, expectations are irrelevant in the measurement of service quality. However, from a diagnostic perspective, it is the SERVQUAL scale that outperforms the SERVPERF scale by possessing a superior diagnostic power to identify the critical service quality shortfalls that require immediate attention for improvement. The implication is that, the inclusion of expectations in the measurement of service quality is essential, particularly when the objective is to identify specific quality flaws for managerial interventions. Thus, the choice between the two scales should be determined by its purpose. On the one hand, when the interest is simply to assess service quality or to make quality comparisons across service industries, the SERVPERF scale should be preferred because of its superior psychometric properties, while, on the other hand, when the objective is to identify specific service quality shortfalls for improvement, it would be necessary to use the SERVQUAL scale because of its superior diagnostic power.

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