Assessing Service Quality in Higher Education using the SERVQUAL Tool

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Abstract

Service quality in higher education is critical and how students relate to different segments of the university has been found to be one of the factors that affect student throughput. The purpose of this paper is to determine the current quality of the Department of Industrial Engineering at Tshwane University of Technology. The Servqual assessment tool was used and the results indicated that there is a gap between quality that a student had expected and the service they actually received in all the dimensions of service quality with the main gap being in the area of tangibles and responsiveness.

Keywords
Service quality, Higher education, SERVQUAL assessment

1. Introduction
Service quality in higher education has recently become a focus point as a result of pressure from the Department of Higher Education. Value for the money given to higher education institutions is being questioned in South Africa. Of particular concern is the throughput rate at the institutions compared to the money spent (Ian Scott, Yeld et al. 2007). Issues regarding the quality of service provided to students to ensure that they work through their programs effectively are being investigated.

Service quality in higher education is currently measured by student satisfaction and quality in higher education can be determined by the extent to which student needs and expectations are being met. (Besterfield 1994) outlined that Juran defines quality as meeting customer expectation and Philip Crosby defines quality as conformance to specifications (Crosby 1979). (Grönroos and Shostack 1983) emphasize that quality possesses both the "what" and "how" aspects; therefore both the technical quality and functional quality are important in order to meet customer expectations. It is also clear from this definition of quality which customers expect determines how they measure it at any given time.

In South Africa, service quality in higher education is determined by a student satisfaction survey and program accreditation as mandated by the Department of Higher Education. While student surveys normally take place in the middle of the study period, the timing of the surveys varies among the institutions, and these assessments mostly focus only on course content and lecturer relationships and not at all on the administration of the departments and the universities at large (Ian Scott, Yeld et al. 2007). Accreditation measures the quality of the program from the quality management system point of view. This audit verifies whether the higher education institutions are providing the service as per the required standard approved by the Council of Higher Education.

In the higher education context, the students and stakeholders are the customers. Hence the focus of this research falls on assessing whether the Department of Industrial Engineering is meeting the expectations of students and all the dimensions identified by (Parasuraman, Zeithaml et al. 1985).

2. Methodology
A Quantitative research method was employed for this study and purposeful sampling was used to sample students willing to participate on the study. The questionnaire developed by Parasuraman, Zeithaml et al. (1988) was used as a guide to develop the survey for this study. Although, the most common instrument used to measure student quality in a higher education environment was developed by Betz1(969) and Hampton (1993), based on educational services, student encounters and quality in education, the questionnaire employed in this study was developed based

on the questionnaire developed by Parasuraman because the focus of this study falls on the general service function of the department service staff and the lecturers rather than academic context (Parasuraman, Zeithaml et al. 1988) The said survey is designed to identify the gap between the level of the perceived quality and the expected quality. The Servqual instrument can be acquired off the shelf, thus catering for a variety of service industries; therefore, an adjustment was made to the questionnaire to fit the South African context, in particular, the Department of Industrial Engineering. The final questionnaire that was administered to the students included 22 questions on perceptions and expectations; both of which measure the student responses to the items on a seven point Likert scale that ranges from strongly disagree to strongly agree. Table 3 indicates examples of questions posed to the students in terms of tangible dimensions.

Table 3: Samples of some of the questions in the questionnaire

SECTION B: Measuring Customer Expectations of Service Quality – What you Expect from the Department								
		Strongly Disagree						Strongly Agree
1.	An excellent industrial engineering department will have modern-looking equipment.	1	2	3	4	5	6	7
2.	The physical facilities at an excellent industrial engineering department will be visually appealing.	1	2	3	4	5	6	7
3.	Employees at an excellent industrial engineering department will have a neat appearance.	1	2	3	4	5	6	7
4.	Materials associated with the service (such as study guides, course material hand outs) will be visually appealing in an excellent Industrial Engineering Department.	1	2	3	4	5	6	7

The survey was sent to 200 industrial engineering students, who were studying core industrial engineering subjects from all levels, requesting them to participate in the study. According to (Foster 2010), for this study to be valid, a sample size of 50 to 100 is required, and depending on the type of analysis to be performed, statistical analysis will require at least 31 data points for one to make inferences from the data. Only undergraduate students were sampled to participate in the study. Students were given sufficient time to complete the questionnaire and reminders were sent to ensure an adequate response rate.

3. Analysis and Results

One hundred and twenty three responses were received and the data were captured for analysis. A data cleaning process was carried out to ensure the reliability and accuracy of the data. The analysis of the data was performed using the statistical software Statistical Product and Service Solutions (SPSS) according to the guidelines set out by(Foster 2010) . Equation (1) was used to compute the averages of each variable assessed and equations (2) and (3) were used to determine the average of the various dimensions of quality. Gaps were identified between the perceived service and expected service by using equation (4). The differencing tool was used to determine the area on which the department must focus in order to make a significant impact on improving the services offered.

$$\sum_{i=n}^{n} x_i / n \quad (1)$$

$$\sum_{1}^{n} x_{j+i} /_{i(n)} \quad (2)$$

$$\sum_{0}^{4} y_j /_b \quad (3)$$

where: j = the number of subgroup sizes = 5
i = variables = 0 ≤ 22
n = Sample size
$y_1 = t_{1-4}$; $y_4 = t_{12-16}$
$y_2 = t_{4-8}$; $y_5 = t_{16-21}$
$y_3 = t_{8-12}$

$$\text{Gap} = P_s - E_s \quad (4)$$

4. Results

Table 1 presents the demographic data of the respondents; a 62 percent of response rate was recorded. The biographical analysis in Table 1 indicates that there is a good representation of the students for all the semesters and that the majority of students are local females.

Table 1: Demographic data of respondents

Items	Description	Results
1.	**Gender**	
	Female	80
	Male	43
2.	**Nationality**	
	Local	120
	International	3
3.	**Level of study**	
	Semester 1	20
	Semester 2	40
	Semester 3	38
	Semester 4	25

4.1 Results from identified variables

In order to identify the gap, analysis of identified variables was conducted for both the perceived and expected scores. Mean scores for each variable were computed; the results are displayed in Table 2. The analysis indicates that gaps exist between the students' expectations and the actual service received for most of the variables. Only two of the variables, which assessed whether the department has the interests of the students at heart and whether the department understands the needs of the students, indicated that they received more than that which they had expected.

Table 2: Mean scores for Perceived and Expected Quality

	Expectation Mean	Perception Mean	Gap Scores
1	5.60	4.82	-0.78
2	5.44	4.56	-0.88
3	6.09	4.72	-1.37
4	5.30	4.11	-1.20
5	5.52	4.80	-0.72
6	5.56	4.82	-0.74
7	5.08	4.84	-0.24
8	5.59	4.80	-0.78
9	5.50	4.83	-0.67
10	5.59	4.89	-0.71
11	6.04	4.92	-1.12
12	5.70	5.01	-0.69
13	5.57	4.92	-0.65
14	5.66	4.99	-0.67
15	5.64	5.11	-0.54
16	5.67	5.04	-0.63
17	5.63	5.02	-0.62
18	5.65	5.05	-0.60
19	5.59	5.05	-0.54
20	5.70	4.99	-0.71
21	5.05	5.10	0.05
22	5.00	5.10	0.10

4.2 Analysis of the gaps per service dimension

In order to understand the extent of the gap that exists between each variable, analysis of the service dimension was deemed necessary. (Foster 2010) indicates that the average of each service dimension can be determined in order to understand the extent of the mentioned gap. This is useful for management because it would give them an indication as to which service dimension needs the most urgent intervention. Table 4 indicates that the results of this analysis, which reveals that there is great negative mismatch within the dimension of tangibles followed by responsiveness, reliability and assurance with the scores of -1.06, -0.79, -0.63 and -0.61 respectively, are placed at the third place and very close to each other. This indicates that students' expectations in terms of equipment, facilities and environment are higher than what they perceive they should be, that is their actual experiences. Since the study was conducted at the University of Technology, it is fair for students to expect equipment, facilities, and an environment that would meet the standards of the University of Technology. Students indicated that the state of the classrooms and lecturing equipment did not meet their expectations. This problem exists throughout the university and consequently new buildings are being built with the purpose of improving this dimension.

With regard to the dimension of responsiveness, the students indicated that the department does not respond to their queries effectively. This dimension is of essence since students always need information and administration services from the department. The main concern of the students in this regard is that the department does not provide the services required at the time it promises to do so. Responding on time is important for students since they work according to deadlines to which they need to adhere in order to progress effectively with their studies; a gap of 0.79 was determined for this dimension. The results indicated that the only dimension that meets the needs of the students in the department is that of empathy. This is a positive aspect because the department motto is to serve the students. The department needs to continue to serve the students as required and to manage all the identified gaps accordingly.

Table 4: Gap identification per service dimension

Service dimension	Perception	Expectation	Gap
Tangibles	4.55	5.61	-1.06
Reliability	4.82	5.45	-0.63
Responsiveness	4.93	5.73	-0.79
Assurance	5.04	5.65	-0.61
Empathy	5.06	5.40	-0.34

In order to validate the results, two-sample *t*-tests were performed to determine the significance of these variables and to compare the differences between them. The results of this analysis are displayed in Table 5 below

Table 5: Two sample t-test results for Perception versus Expectation

	N	Mean	StDev	SE Mean	P- Value	DF	T	T-value
Perception	5	4.880	0.208	0.093				
Expectation	5	5.568	0.139	0.062	0.001	6	0	-6.16

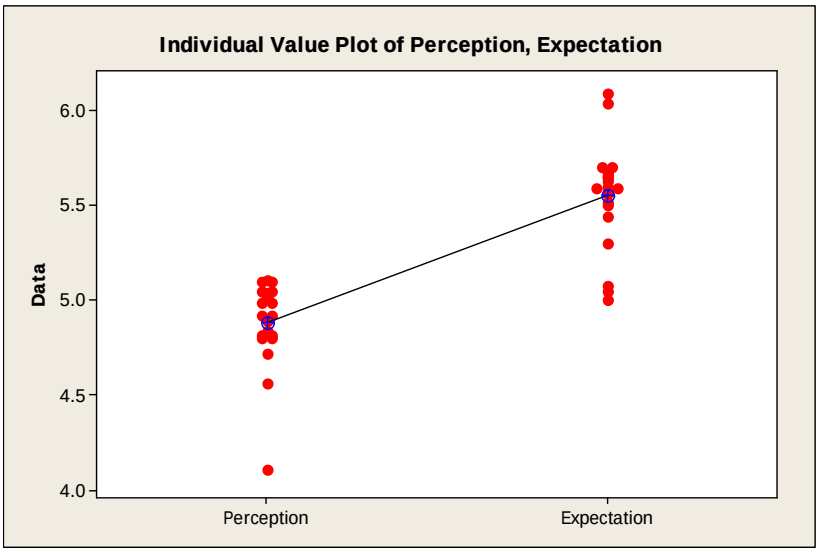

Figure 1: Individual data plot Graphs for results

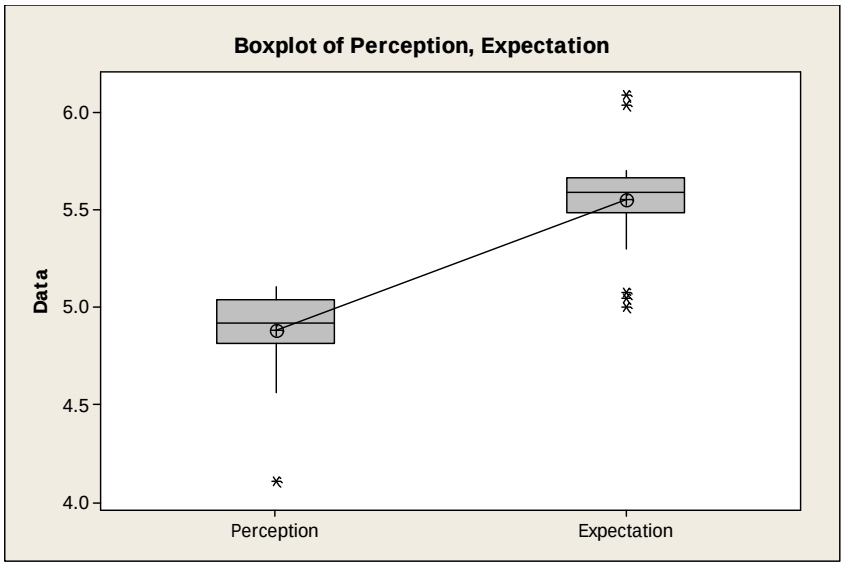

Figure 2: A box plot graph based on the results for the perception and expectation variables

The two-sample *t*-test indicates that there is a significant difference between the perceptions of the student and that which they expected. The *p* value of 0.001 was reported for this study. Figure 1 and Figure 2 indicate the differences between the means of the two samples of data. It is clear that there is a mean difference between what the students expected and their actual perceptions in the said department.

4.3 Two dimensional differencing

This method assists in identifying the dimensions which must be attended to in order to improve customer perceptions and those that make little difference. The analysis indicates that the department must focus on all the dimensions because there is very little variation between the responses. The department is therefore advised to focus on responsiveness, reliability, and assurance, since the tangible dimension is prevalent throughout the university. In fact, work has already begun in order to address the latter issue.

5. Conclusion

Service quality is an important component in engineering education. The students' perceptions of service quality contribute to how they interact with the department and their learning as a whole.

This study indicates that students' expectations of service quality are not being met. The areas which students highlight as needing attention are the tangibles, responsiveness, reliability, and assurance. Although this study confirms the need for a better infrastructure within the faculty, which management is already addressing by engaging in an infrastructure expansion project, it also highlighted important dimensions which have not yet been prioritized.

The said dimensions of responsiveness, reliability, and assurance are critical and they need to be improved because they are related to the engagement of students and staff. If students believe that the staff are not responsive to their needs, it is concerning, since this might result in students not requesting the services they need to improve their performance. The issue of reliability is concerning since it indicates that students perceive that staff members are not reliable; this speaks about the confidence in the information supplied to the students by the staff. Assurance is related to the ability of the staff to assure students that their concerns will be dealt with.

The department needs to develop strategies aimed at addressing these three dimensions and monitoring the performance of the students once this gap has been closed. In order to improve service quality, this gap between the perceived quality and the expected quality must be closed and retained for all students, even for those entering the university for the first time. Doing so would result in the department attracting high quality students and consequently increasing the student outputs. The success of this instrument to measure service quality in industrial

engineering indicates that one can use this instrument to measure service quality at other higher education institutions. Higher education institutes could utilize this tool to identify strategic areas of focus in order to improve their quality of service, consequently also lead to an increase in student throughput. I therefore suggest that the study be conducted at all universities of technology in South Africa to determine if this instrument can indeed identify focus areas for all such institutions.

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Biography

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