

مجلة إدارة الجودة الشاملة Total Qualaity Management Journal

Journal homepage: http://journals.sustech.edu/



Evaluation of service quality dimensions in higher education institutions: The Case of Sudan University of Science and Technology

Abdelmutalab Ibrahim Abdelrasul Adam

Development and Quality Deanship, Sudan University of Science & Technology, Khartoum, Sudan. Tel: +249183743683 - Fax: +249183743681 - PO Box: 6070, E-mail: abdelmutalab@gmail.com

ABSTRACT

The aim of this study was to examine the service quality dimensions in higher education in Sudan. A variety of Service Quality dimensions has been examined. This study used a self-administered questionnaire adapted from the SERVQUAL model as a tool to get responses from the students. Based on random sampling on 250 students employing a survey instruments that measure five dimensions of quality attributes, the main implication is that all the five dimensions of service quality are a negative, meaning students are not satisfied with the service delivered by Sudan University of science and Technology (SUST). Implications and limitations of the study are highlighted and further research discussions are suggested.

المستخلص:

الهدف من هذه الورقة هو دراسة أبعاد جودة الخدمة في التعليم العالي في السودان وقد تم اختبار مجموعة متنوعة من أبعاد جودة الخدمات حيث استخدم في هذه الدراسة استبيانا ذاتيا مقتبسا من نموذج قياس جودة الخدمات كأداة للحصول على ردود من الطلاب معتمدا في ذلك على عينة عشوائية من 250 طالبا مع استخدام أدوات المسح التي تقيس أبعاد و سمات جودة الخدمة، وتوصلت الدراسة الي نتيجة رئيسية و هي أن جميع أبعاد جودة الخدمة جاءت سلبية، وهذا يعني ان الطلاب غير راضين عن الخدمة المقدمة من قبل جامعة السودان للعلوم و تكنولوجيا. كما سلطت الدراسة الضوءعلي جوانب القصور واقترحت الورقة إجراء مزيد من الدراسات البحثية في موضوع ابعاد جودة الخدمة في التعليم العالي مستقبلا.

Keywords: SERVQUAL Instrument; Student Satisfaction; Service Dimensions.

Introduction

Higher education is facing pressure to improve value in its activities (Heck and Johnsrud, 2000). The present tenet for enhancing educational value is to expend effort on continuous improvement, to focus on stakeholder interests, and to increase student satisfaction. Student satisfaction is often used to assess educational quality, where the ability to address strategic needs is of prime importance (Cheng, 1990). Quality in education can be said to be determined by the extent to which students' needs and expectations can be satisfied. Various concepts and models have been developed to measure student and stakeholder satisfaction. The present research built upon the SERVQUAL instrument. The research provides an increased body of knowledge surrounding the service quality dimensions, with specific focus on the higher education sector. The research also provide guidance for higher education managers wanting to understand the dynamics of customer service perceptions in

Sudan, and improve the quality of service delivered, in order to enhance customer satisfaction and customer loyalty.

Service Quality dimensions

A variety of approaches has been applied to explain the multidimensional nature of service quality these are:

1. Stevenson and others (1999)

One approach, used by Stevenson and others 1999 (Stevenson 1999), is to simply apply Garvin's 8 dimensions of product quality to services.

- (1) Performance: The primary operating characteristics of a product.
- (2) Features: The 'bells and whistles' of a product (i.e., those characteristics that supplement the basic functions).
- (3) Reliability: The probability that a product will fail within a specified period of time.
- (4) Conformance: The degree to which the design or operating characteristics of a product meet pre-established standards.
- (5) Durability: The amount of use a product can sustain before it physically deteriorates to the point where replacement is preferable to repair.
- (6) Serviceability: The speed, courtesy, competence, and ease of repair.
- (7) Aesthetics: The look, feel, taste, smell, and sound of a product.
- (8) Perceived Quality: The impact of brand name, company image, and advertising.

No empirical basis has been provided for these dimensions also question whether the 8 product dimensions capture all the important aspects of service transactions.

Evans & Lindsay (1999)

Evans & Lindsay (1999) provide a list of 8 service dimensions that are drawn from the work of several other researchers.

- (1) Time; Customer waiting time
- (2) Timeliness; On-time completion.
- (3) Completeness; Customers get all they ask for.
- (4) Courtesy; Treatment by employees.
- (5) Consistency; Same level of service for all customers.
- (6) Accessibility and convenience; Ease of obtaining service.
- (7) Accuracy; Performed correctly every time.
- (8) Responsiveness: Reaction to special circumstances or requests.

While intuitively appealing, there is little empirical evidence to support these service quality dimensions.

Parasuraman, et al (1988)

Parasuraman, et al (1988) provides a list of 5 service dimensions that are empirically derived and are called the SERVOUAL Dimensions.

- (1) Tangibles: Physical facilities, equipment, and appearance of personnel
- (2) Reliability: Ability to perform the promised service dependably and accurately
- (3) Responsiveness: Willingness to help customers and provide prompt service
- (4) Assurance: Knowledge and courtesy of employees and their ability to inspire trust and confidence
- (5) Empathy: Caring, individualized attention the firm provides its customers While empirically derived, these dimensions were developed and tested in just 4 types of service industries and may not be universally applicable.

Mowen (1995)

However, Mowen (1995) is of the view that neither the five dimensions of Parasuraman's research team nor Garvin's eight dimensions of product quality are adequate and proposes the following eight dimensions as being more appropriate

and capable of taking care of both service quality and goods quality

- (1) Performance: The absolute level of performance of the good or service on the key attributes identified by customers.
- (2) Number of attributes: The number of features/attributes offered.
- (3) Courtesy: The friendliness and empathy shown by people delivering the service or good.
- (4) Reliability: The consistency of the performance of the good or service.
- (5) Durability: The product's life span and general sturdiness.
- (6) Timeliness: The speed with which the product is received or repaired; the speed with which the desired information is provided or service is received.
- (7) Aesthetics: The physical appearance of the good; the attractiveness of the presentation of the service; the pleasantness of the atmosphere in which the service or product is received.
- (8) Brand Equity: The additional positive or negative impact on perceived quality that knowing the brand name has on the evaluation of perceived quality.

KQCAH Scale

Empirical analysis of the JCAHO hospital industry quality dimensions indicates that there are really 8 dominant dimensions referred to as the KQCAH Scale. Sower, V., et al (1998)

- (1) Efficacy,
- (2) Appropriateness,
- (3) Efficiency,
- (4) Respect & Caring,
- (5) Safety
- (6) Continuity
- (7) Effectiveness
- (8) Timeliness, and;
- (9) Availability.

Results in the literature shows that many authors have used a variety of attributes to measure service quality dimensions, but there still uncertainty about which attributes are more likely to measure Service Quality in higher education. However, the dimensions of quality and the measurement approach to the service quality are still been debated and unsettled with little agreement on what it is or how to measure it.

Table 1: Service Quality dimensions: Similarities

Approach	Dimensions Similarities					
	Stevenson and others (1999)	Evans & Lindsay (1999)	Parasuraman, et al (1988)	Mowen (1995)	KQCAH Scale	
Stevenson and others (1999)	(***)		Reliability	Performance Reliability Durability Aesthetics		
Evans & Lindsay (1999)			Responsiveness	Courtesy Timeliness	Timeliness	
Parasuraman, et al (1988)	Reliability	Responsiveness		Reliability	Empathy (Respect & Caring,)	
Mowen (1995)	Performance Reliability Durability Aesthetics	Courtesy Timeliness			Timeliness	
KQCAH Scale		Timeliness	Empathy (Respect & Caring,)	Timeliness		

The SERVQUAL instrument:

Parasuraman et al. published a conceptual paper in 1985(A Conceptual Model of Service Quality and Its Implications for Future Research,") identifying five service quality gaps (see Figure 1).

Gap 1: measure the Difference between consumer expectations and management perceptions of consumer expectations. It emerges as a result of the lack of a marketing research orientation, inadequate upward communication and too many layers of management.

Gap 2: measure the Difference between management perceptions of consumer expectations and service quality specifications. It emerges as a result of inadequate commitment to service quality, a perception of unfeasibility, inadequate task standardization and an absence of goal setting.

Gap 3: measure the Difference between service quality specifications and the service actually delivered. It emerges as a result of role ambiguity and conflict, poor employee-job fit and poor technology-job fit, inappropriate supervisory control systems, lack of perceived control and lack of teamwork.

Gap 4: measure the Difference between service delivery and what is communicated about the service to consumers. It emerges as a result of inadequate horizontal communications and propensity to over-promise.

Gap5: measure the discrepancy between customer expectations and their perceptions of the service delivered, it emerges as a result of the influences exerted from the customer side and the shortfalls (gaps) on the part of the service provider. In this case, customer expectations are influenced by the extent of personal needs, word of mouth recommendation and past service experiences.

According to Brown and Bond (1995), "the gap model is one of the best received and most heuristically valuable contributions to the services literature". The model identifies five key discrepancies or gaps relating to managerial perceptions of service quality, and tasks associated with service delivery to customers. The first four gaps (Gap 1, Gap 2, Gap 3, Gap 4,) are identified as functions of the way in which service is delivered, whereas Gap 5 pertains to the customer and as such is considered to be the true measure of service quality. The Gap on which the SERVQUAL methodology has influence is Gap 5. In the following, the SERVQUAL approach is demonstrated.

SERVQUAL methodology:

Clearly, from a Best Value perspective the measurement of service quality in the service sector should take into account customer expectations of service as well as perceptions of service. However, as Robinson (1999) concludes: "It is apparent that there is little consensus of opinion and much disagreement about how to measure service quality". One service quality measurement model that has been extensively applied is the SERVQUAL model developed by Parasuraman et al. (1985, 1988, 1991, 1993, 1994; Zeithaml et al., 1990). SERVQUAL as the most often used approach for measuring service quality has been to compare customers' expectations before a service encounter and their perceptions of the actual service delivered (Gronroos, 1982; Lewis and Booms, 1983; Parasuraman et al., 1985). The SERVQUAL instrument has been the predominant method used to measure consumers' perceptions of service quality

Parasuraman, et al (1988) provides a list of 5 service dimensions that are empirically derived and are called the SERVQUAL Dimensions.

- (1) Tangibles: Physical facilities, equipment, and appearance of personnel
- (2) Reliability: Ability to perform the promised service dependably and accurately

- (3) Responsiveness: Willingness to help customers and provide prompt service
- (4) Assurance: Knowledge and courtesy of employees and their ability to inspire trust and confidence
- (5) Empathy: Caring, individualized attention the firm provides its customers. In the SERVQUAL instrument, 22 statements (Figure 1) measure the performance across these five dimensions, using a seven point likert scale measuring both customer expectations and perceptions (Gabbie and O'neill, 1996). It is important to note that without adequate information on both the quality of services expected and perceptions of services received then feedback from customer surveys can be highly misleading from both a policy and an operational perspective.

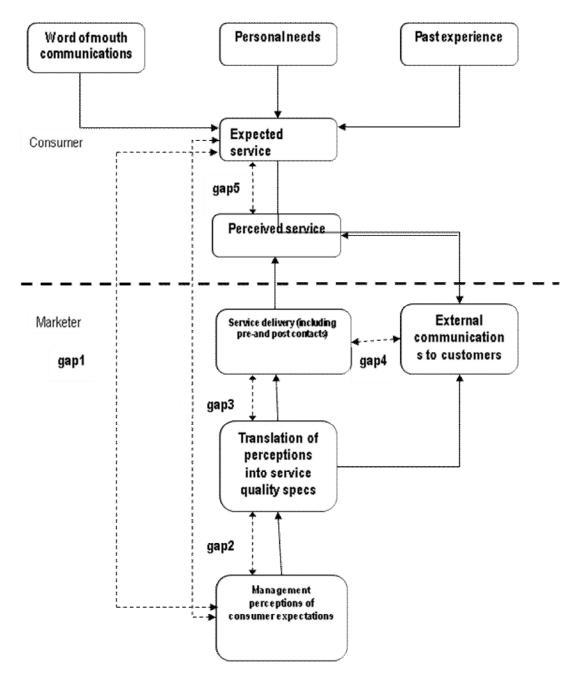


Figure 1: SERVQUAL (Service Quality Model)

Research Methodology and Data Collection

The methodology developed in this study is largely driven by the research objective which is to examine the service quality dimensions and to establish the number of dimensions of service quality in higher education in Sudan, with five null hypotheses based on the service quality dimensions(Tangibility, Reliability, Responsiveness, Assurance and Empathy) that, there will be no statistically significant difference between the expected degree of the dimension attributes and one that perceived by students, and to answer the following research questions: What is the expected level of educational service quality? What is the perceived level of educational service quality? What is the service quality dimensions?

In order to answer the research questions and to obtain data for the determination of service quality dimensions and perceived service quality in higher education, this study used a self-administered (structured) questionnaire adapted from the SERVQUAL model (Parasuraman et al, 1994) as a tool to get responses from the subjects.

The study employed a stratified random sampling technique that consisted of two types of strata. The first stratum is according to the year of study, the second stratum is according to the College, the questionnaires were distributed to diverse participants, for the application of the measurement tool; the present study involved students (250 students) from different colleges of Sudan University of science and technology (College of Medical Laboratory Science, College of Engineering, College of Education, College of business studies and College of Veterinary Medicine) which is a leading higher education university in our country. The sampling applied in a way that its results can be generalized according to the universe.

An important consideration in sample design is the choice of sample size. Larger samples provide greater precision but are more costly to undertake. A common approach to choosing the sample size is to specify the precision desired and then determine the optimal sample size providing that precision.

Roscoe (1975) proposes that the appropriate sample sizes for most research to be greater than 30 and less than 500. Taking into considerations these guidelines, we decided to choose 250 undergraduate students as our sample.

The questionnaires were distributed to diverse participants, for the application of the measurement tool; the present study involved students (250 students) from different colleges of Sudan University of science and technology (College of Medical Laboratory Science, College of Engineering, College of Education, College of business studies and College of Veterinary Medicine) which is a leading higher education university in our country. The sampling applied in a way that its results can be generalized according to the universe.

The survey instrument consisted of two parts. In part A of the questionnaire, survey respondents were asked to state their level of agreement of each statement for five dimensions of service quality in education on a Seven point Likert ordinal scale (1 represent "strongly disagree" to 7 represent "strongly agree"; 4 denotes average). Cooper (2000) argued that this type of scale is considered to be an interval scale. Therefore, measurement of central tendency and its dispersion can be made. Demographic backgrounds of respondents were asked in part B of the questionnaire. Some were assigned to certain categories and it is mutually exclusive and collectively exhaustive. Thus it possessed a property of a nominal scale.

The data from the questionnaire was collected during the summer of 2014. All completed questionnaires were reviewed for completeness, accuracy and quality of

data. The useable questionnaires were coded and entered into a preset SPSS (Statistical Package for the Social Sciences) (16) software program.

The analyses of the research data include descriptive statistics such as the calculation of frequency, percentage, mean and standard deviation as a method of data examination.

Servqual Results:

A total of 22 questions related to five dimensions (Table 3) were asked. The level of satisfaction was measured by a 7-point Likert scale, with 7 – indicating the highest satisfaction level against their desired service level, and 1 – indicating the lowest satisfaction level against their desired service level.

Following this, the Gap Score for each dimension is calculated by subtracting the Expectation score from the Perception score. A negative Gap score indicates that the actual service (the Perceived score) was less than what was expected (the Expectation score). In the present study, all the Gap Scores calculated are negative (Table 3) indicating that for each service quality attribute of Sudan University of Science and Technology student's expectations are not being met. The 'paired samples t-test' was also used to calculate the gap scores for each dimension (Table 2). The mean scores are presented in column five in Table 2. All the t-values are well above the critical value of '2' and the significance level is below 1 % (p < .01) level. Unfortunately all the dimensions exhibit a negative Mean Gap score ranging from '-1.54' to '-1.96'. The general Mean Gap figure for all the 22 attributes is – 1.80. The assurance Dimension has the smallest negative mean gap score (– 1.45), while the Reliability Dimension has the largest negative mean gap score (– 1.96).

The main implication is that, all the five dimensions of service quality are a negative, meaning students are not satisfied with the service delivered by Sudan University of science and Technology (SUST)

Table 2: The Gap Score for all dimensions

	Dimensions	Expectation score	Perceived score	Gap	t-test
				Score	
a	Tangibles	5.69	3.76	1.93-	5.40
b	Reliability	5.57	3.61	-1.96	15.16
c	Responsiveness	5.62	3.88	-1.74	13.89
d	Assurance	5.91	4.37	-1.54	6.85
e	Empathy	5.39	3.52	-1.87	7.44
	Average	5.63	3.83	-1.8	29.15

Table 3: Calculation of SERVQUAL Scores

Dimension	Statement	Expectation Score	Perception Score	Gap Score	Average	Average for
		Score	-		Servqual Score For	Dimension
					the	Difficusion
					dimension	
Tangibles	1	5.81	3.43	-2.38	G 1111 G 1151011	
	2	5.74	3.27	-2.47		
	3	6.05	4.63	-1.42	3.7675	
	4	5.17	3.74	-1.43		-1.925
Reliability	5	5.61	3.70	-1.91		
J	6	5.46	3.65	-1.81		
	7	5.50	3.38	-2.12	3.618	
	8	5.45	3.53	-1.92		
	9	5.84	3.83	-2.01		-1.954
Responsiveness	10	5.76	4.13	-1.63		
•	11	5.56	3.68	-1.88		
	12	5.66	4.04	-1.62	3.8825	
	13	5.51	3.68	-1.83		-1.74
Assurance	14	5.75	4.36	-1.39		
	15	5.98	4.34	-1.64		
	16	5.78	3.90	-1.88	4.375	
	17	6.14	4.90	-1.24		-1.5375
Empathy	18	4.80	3.19	-1.61		
	19	6.10	3.67	-2.43		
	20	5.03	3.43	-1.60		
	21	5.37	3.57	-1.80	3.524	
	22	5.68	3.76	-1.92		-1.872
Unweighted Ave	rage SERVO	QUAL score:				-1.8057

Findings on the hypotheses testing Hypothesis 1

H0: There will be no statistically significant difference between the expected tangible items and one that perceived by students.

HA: There will be statistically significant difference between the expected tangible items—and one that perceived by students.

TANGIBILITY – Appearances in satisfying students:

The SERVQUAL gap score for tangibility is -1.93 (Figure 2), the expectation score is 5.69, exceeded the perception score which is 3.76, combined with the fact that it received the highest dimension importance score(23.5), indicates that Sudan University of Science and Technology students are dissatisfied with the overall tangible appearances (equipment, materials, physical facilities and employees) of Sudan University of Science and Technology.

Based on the t-test, it can be concluded that there is statistically significant difference between the expected tangible attributes and one that perceived by students

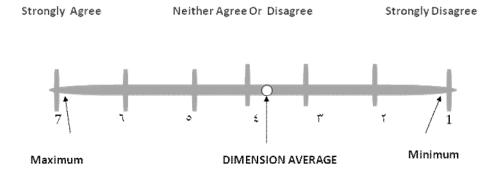


Figure 2: Tangibility Dimension - Average Perception Score

Hypothesis 2

H0: There will be no statistically significant difference between the expected degree of reliability and one that perceived by students.

HA: There will be statistically significant difference between the expected degree of reliability and one that perceived by students.

RELIABILITY – Ability of Sudan University of Science and Technology staff to perform promised services dependably and accurately:

According to the average SERVQUAL perception value for reliability is 3.61 out of a possible 7 (Figure 3), combined with the fact that the expectation score (5.57) exceeded the perception score (3.61). The gap score is -1.95, indicates that performance of all of the dimensions listed under Reliability (acting according to promises, sincerity in problem solving, performing the service right at the first time, providing service at the promised time and insistence on error free records) is dissatisfactory. Put more succinctly, Sudan University of Science and Technology students are dissatisfied with the ability of Sudan University of Science and Technology to provide promised services dependably and accurately.

Based on the t-test, it can be concluded that there is statistically significant difference between the expected reliability attributes and one that perceived by students.

DIMENSION AVERAGE

Figure 3: Reliability Dimension – Average Perception Score Hypothesis 3

Maximum

H0: There will be no statistically significant difference between the expected degree of responsiveness and one that perceived by students.

HA: There will be statistically significant difference between the expected degree of responsiveness and one that perceived by students.

RESPONSIVENESS - Response and willingness of employees in providing service:

The SERVQUAL gap score for responsiveness is -1.74. (Figure 4) { the expectation score(5.60) exceeded the perception score(3.70)}, indicates that Sudan University of Science and Technology students are dissatisfied with the overall This score indicates that the Sudan University of Science and Technology students are dissatisfied with the overall responsiveness of Sudan University of Science and Technology. Specifically, they are dissatisfied with the Sudan University of Science and Technology performance in the areas of informing when services will be performed, providing services promptly, willingness to help, and never being too busy to respond to request for service.

Based on the t-test, it can be concluded that there is statistically significant difference between the expected responsiveness attributes and one that perceived by students.

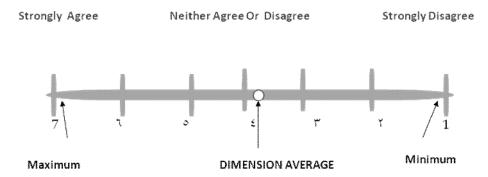


Figure 4: Responsiveness Dimension – Average Perception Score

Minimum

Hypothesis 4

H0: There will be no statistically significant difference between the expected degree of assurance and one that perceived by students.

HA: There will be statistically significant difference between the expected degree of assurance and one that perceived by students.

ASSURANCE: Knowledge and courtesy of employees and their ability to inspire trust and confidence

The SERVQUAL gap score for assurance is -1.54 (Figure 5) indicates that, Sudan University of Science and Technology students feels unsafe in their transaction with the staff of Sudan University of Science and Technology. Additionally they indicate that the staffs of Sudan University of Science and Technology are consistently not courteous, that they aren't possessing good knowledge when answering questions and that their behavior instills confidence.

Based on the t-test, it can be concluded that there is statistically significant difference between the expected assurance attributes and one that perceived by students.

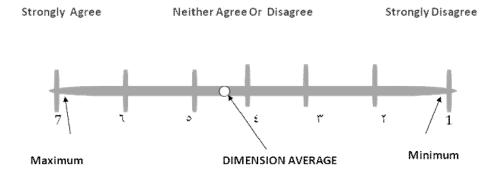


Figure 5: Assurance Dimension – Average Perception Score Hypothesis 5

H0: There will be no statistically significant difference between the expected degree of empathy and one that perceived by students.

HA: There will be statistically significant difference between the expected degree of empathy and one that perceived by students.

EMPATHY - Performance in personal care, understanding students and convenient operating hours:

The SERVQUAL gap score for empathy is 1.87 (Figure 6), indicates that, Sudan University of Science and Technology students are dissatisfied with the overall empathy displayed and demonstrated by Sudan University of Science and Technology. Sudan University of Science and Technology students responded that they aren't believe that the Sudan University of Science and Technology provides individual attention, hasn't convenient operating hours, has employees who provide personal attention, who have their (teaching staff and employee) bad interests at heart.

Based on the t-test, it can be concluded that there is statistically significant difference between the expected empathy attributes and one that perceived by students.

Figure 6: Empathy Dimension – Average Perception Score

Discussion

Five hypotheses were evaluated by SPSS (16). Table 4 presents a summary of the results; all the five null hypotheses were rejected. That conclude There is statistically significant difference between students expectations and items of five dimensions (tangible, reliability, Responsiveness, Assurance and Empathy) that perceived by students. which means Sudan University of Science and Technology is currently providing good higher education service (69.1%) but is not meeting the overall expectations of its students, who are dissatisfied with the level of service quality offered to them (Gap Score (Gap 5) is -1.8,).

Table 4: Summary of hypotheses testing

No	Hypothesis	The result
1	Ho1:There will be no statistically significant difference between	Rejected
•	the expected tangible items and one that perceived by students	5 1
2	Ho2:There will be no statistically significant difference between the expected degree of reliability and one that perceived by students	Rejected
3	Ho3:There will be no statistically significant difference between the expected degree of responsiveness and one that perceived by students	Rejected
4	Ho4: There will be no statistically significant difference between the expected degree of assurance and one that perceived by students.	Rejected
5	Ho5:There will be no statistically significant difference between the expected degree of empathy and one that perceived by students	Rejected

The assurance Dimension has the smallest negative mean gap score (-1.45) which mean it's the highest quality Dimension from the student viewpoint , while the Reliability Dimension has the largest negative mean gap score (-1.96) which mean it's the lowest quality Dimension from the student viewpoint .

The study revealed that all the five SERVQAUL dimensions are not up to the students expectations. Specially the Reliability Dimension where the students expected a university staff who act according to promises, sincerity in problem solving, performing the service right at the first time, providing service at the

promised time and insistence on error free records, but they actually provided with 64.8 % reliable service. (5.57 expected, 3.61 perceived). Also analysis of the difference between the expectation of service quality and perceived service quality revealed room for improvement in all Dimensions. When considering the value placed upon the five aspects and applying that information to the Gap 5 results; reliability, tangibles and empathy are the areas where the most effort should be focused on.

This study has focused on the student's evaluation of higher education service quality dimensions. Future research should focus on the evaluation of service quality from other stakeholders viewpoints (such as the university staff, government, industries, society etc.). A comprehensive study would help the university to review and improve its overall higher education service quality

REFERENCES

- Brown, S. W., and Bond III, E. U. (1995). The internal market/external market framework and service quality: Toward theory in services marketing. *Journal of Marketing Management*. 11(1-3): 25-39.
- Cheng, Y. C. (1990). Conception of School Effectiveness and Models of School Evaluation: A Dynamic Perspective. *Chinese University Education Journal.* **18** (1): 47-61.
- Cooper, D. R. Schindler (2001). Business Research Methods: McGraw-Hill International
- Evans, J.R., and Lindsay, W.M. (1996). *The Management and Control of Quality*: West Publishing.
- Gabbie, O., and O'Neill, M. A. (1996). SERVQUAL and the Northern Ireland hotel sector: a comparative analysis-part 1. *Managing Service Quality: An International Journal.* **6**(6): 25-32.
- Grönroos, C. (1982). An applied service marketing theory. *European journal of marketing*. **16**(7): 30-41.
- Heck, R.H., Johnsrud, L. K., and Rosser, V.J. (2000). Administrative effectiveness in higher education: Improving assessment procedures. *Research in higher education*, **41**(6): 663-684.
- Lewis, R. C., and Booms, B. H. (1983). The marketing aspects of service quality. Emerging perspectives on services marketing. **65**(4): 99-107.
- Mowen, J. C., and Minor, M. (1995). *Customer Behavior*. New Jersey: Prentice Hall Inc.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual. *Journal of retailing*. 64(1).p. 12-40.
- Parasuraman, A., Zeithaml, V. A., and Berry, L. L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *the Journal of Marketing*. p.111-124
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985) A conceptual model of service quality and its implications for future research. *Journal of Marketing*. **49**:41-50.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1991). Understanding customer expectations of service. Sloan Management Review. **32**(3): 39-48.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1993) More on improving service quality measurement. *Journal of retailing*. **69** (1): 40-147.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1994). Alternative scales for measuring service quality: a comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing.* **70**(3):201-230.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1990) Guidelines for Conducting Service Quality Research." *Marketing Research*. **2**(4).

- Robinson, S. (1999). Measuring service quality: current thinking and future requirements. *Marketing Intelligence and Planning*. 17(1).p. 21-32.
- Roscoe, A. M., Lang, D., and Sheth, J. N. (1975). Follow-up methods, questionnaire length, and market differences in mail surveys. *The Journal of Marketing*.p. 20-27.
- Sower, V., Duffy, J., Kilboume, W., and Kohers, G. (1998) Development and Use of the KQCAH Scale.

Appendix A: The Research Questionnaire

This survey deals with your opinions of

Sudan University of Science & Technology College of Graduate Studies Deanship of Quality and Development Research Questionnaire

Part 1:

This survey deals with your expectations and perceptions of your college. All responses are anonymous so you do NOT need to record your name on the survey. Please complete the student profile below and then complete the questionnaire.

The following item	ETE ALL THE QUE s are for statistical in		
3-Gender: Male 4-Age:		Female 5-Year of study	
Thanks for your par Part 2: THE SERV	rticipation QUAL INSTRUME	NT	

your college. Ple which you think of following featurinterested in her shows your ex college.		Ple bel des are	ur feeling ase show ieve your scribed in intereste ur percept	the extended the standard	ctent to ge has to atement number	wh the t. Ho tha	ich yo featu ere, v	re ve			
	You sh	ould rank ead	ch statem	ent a	s follows:	-					
Strongly Ag	ree ree						Str	ongl	y Disa	gree	2
1	2	3	4		5		6			7	
Statement			Score	Sta	tement						Score
Excellent co looking equip	llege will have ment.	e modern		1.	The coll equipme	_	is mode	ern	looki	ng	
	l facilities at pe visually appe			2.	The col	_		al f	eatur	es	
	t excellent co eir appearance.	_		3.	The colle	_	mploye	es a	re ne	at	
(pamphlets	sociated with t or statements ealing at an) will be		4.	Material service stateme appealin	(such nts)	as par are	mph		or	
	ent colleges p g by a certain			5.	When the something the something the sound the		•				

The following statements relate to

	do.	does so.	
6.	When a student has a problem, excellent colleges will show a sincere	6. When you have a problem, the college shows a sincere interest	
	interest in solving it.	in solving it.	
7.	Excellent colleges will perform the	7. The college performs the service	
	service right the first time.	right the first time.	
8.	Excellent colleges will provide the	8. The college provides its service at	
	service at the time they promise to do	the time it promises to do so.	
	so.	•	
9.	Excellent colleges will insist on error	9. The college insists on error free	
	free records.	records.	
10.	Employees of excellent colleges will	10. Employees in the college tell you	
	tell students exactly when services	exactly when the services will be	
	will be performed.	performed.	
11.	Employees of excellent colleges will	11. Employees in the college give you	
	give prompt service to students.	prompt service.	
12.	Employees of excellent colleges will	12. Employees in the college are	
	always be willing to help students.	always willing to help you.	
13.	Employees of excellent colleges will	13. Employees in the college are	
	never be too busy to respond to	never too busy to respond to	
	students' requests.	your request.	
14.	The behavior of employees in	14. The behavior of employees in the	
	excellent colleges will instill	college instills confidence in you.	
	confidence in students		
15.	Students of excellent colleges will feel	15. You feel safe in your transactions	
	safe in transactions.	with the college.	
16.	Employees of excellent colleges will	16. Employees in the college are	
	be consistently courteous with	consistently courteous with you.	
	students.		
17.	Academic staff of excellent colleges	17. The college has a knowledgeable	
	will have the appropriate knowledge	and highly qualified academic staff	
	and qualification.	(lecturer).	
18.	Excellent colleges will give students	18. The college gives you individual	
	individual attention.	attention.	
19.	Excellent colleges will have operating	19. The college has operating hours	
	hours convenient to all their students.	convenient to all its students.	
20.	Excellent colleges will have employees	20. The college has employees who	
	who give students personal service.	give you personal attention.	
21.	Excellent colleges will have their	21. The college has your best	
	students' best interest at heart.	interests at heart.	
22.	The employees of excellent colleges	22. The employees of the college	
	will understand the specific needs of	understand your specific needs.	
	their students.		

SERVQUAL Importance Weights

Listed below are the five sets of features pertaining to University and the services they offer. We would like to know how much each of these sets of features is important to the customer. Please allocate 100 points among the five sets of features according to how important it is to you. Make sure the points add up to 100.

Fea	Features					
1.	The appearance of the University's physical facilities, equipment, personnel and					
	communication materials.					
2.	The University 's ability to perform the promised service dependably and accurately					
3.	The University's willingness to help customers and provide prompt service.					

4.	The knowledge and courtesy of the University's employees and their ability to			
	convey trust and confidence.			
5.	5. The caring individual attention the University provides its customers.			
Tot	tal:	100		

Thanks for your participation