

# EXPLORING THE DIMENSIONS OF SERVICE QUALITY IN HIGHER EDUCATION RESEARCH.

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## ABSTRACT

The dimension of service quality is still debated among the academic researchers. The purpose of this study is to examine the different dimensions used and applied in the process of evaluating the service quality under in the higher education sector. Eight different dimensions of service quality were examined to identify the similarities and the differences. The outcome of the findings indicates that each set of dimensions developed are relevant according to different expectations of customers. This study is expected to pave way for researchers who are interested to conduct further studies on the implications of service quality in Malaysian higher education environment.

**Keywords:** Service quality, Higher education, Malaysia

## 1. INTRODUCTION

Service quality has become a strategic option for many institutions of higher learning around the globe. The role of service quality has also become critical to the success of an organization (Landrum, et al 2007). Perception of service quality has become paramount strategic importance for an organization due to its influence on the post-enrolment communication behavior of the students (Marilyn, 2005). Highly satisfied customers are expected to spread a positive word of mouth about the institutions, thus attracting new applicants with lower marketing costs. In Malaysia, both private and public institutions of higher learning strive to provide quality services to its students in order to develop and maintain their reputation. To gain competitive advantages, efforts to adopt the quality management system philosophy are fast spreading within the higher education institutions (HEIs) in Malaysia (Sohail, Rajadurai, Rahman, 2003). Over the last decade, numerous assessments were conducted to measure the service quality in higher education. However, the dimension of quality and the measurement approach to the service quality are still been debated and unsettled. (Owlia and Aspinwall 1996; Parasuraman, Berry, Zeithaml, 1993; Cronin, Taylor, 1994; Carman, 1990; Buttle, 1996). Despite of the on-going debates, many researchers have agreed on the importance and the significances of service quality for organizations to achieve higher customer satisfactions. (Arambewela, 2006; Athiyaman 1997; Ben, 2007; Berry, Zeithaml and Parasuraman, 1990; Boshoff, 2004). Furthermore, Taylor and Baker (1994) have noted that service quality and customer

satisfaction are widely recognized as key influences in the formation of consumers' purchase intentions in service environments. Perceptions of quality found to be an important influence on students' post enrolment word-of-mouth communications. (Parasuraman et al, 1988; Angela, 2006; Ben, 2007; Berry, 2006; Cronin and Taylor, 1994). Athiyaman (1997) noted that service quality perception is an attitude derived from an evaluation of a product or service after the consumption experience. Aldridge and Rowley (1998) explain that good quality education provides better learning opportunities and it has been suggested that the levels of satisfaction or dissatisfaction strongly affect the student's success or failure of learning. Since the HE sector is considered as the service industry (Hill, 1995), study on quality of services provided to the students can be a starting point to achieve the institution's mission of achieving students' satisfaction. Other than the students' perception, expectations are also valuable source of information (Sander et. al, 2000; Hill, 1995). Undergraduate students may have idealistic expectations, and if higher institutions know about their students' expectations, they may be able to respond to them in a more realistic ways (Voss et al 2007). In some cases, the universities also could at least educate the students on what are the realistic expectations (Hill, 1995). In many instances, understanding of students perceptions and expectations would assist the institutions of higher learning to create a conducive study environment with minimum complains or dissatisfactions. Many researchers agree that it is important to understand expectations and values of students in higher education (Telford and Mason, 2005). The primary purpose of this paper is to identify, summarise and examine the key literature in the field of service quality rather than to take stance on the on-going debate on service-quality research.

## **2. THE DEFINITIONS OF QUALITY**

Numerous scientific papers have already attempted to define quality, and most of the authors agree that it is not possible to arrive at a correct and unambiguous definition (Macukow, 2000). However, following are number of common quality definitions: "the degree to which a set of inherent characteristics fulfills requirements (ISO 9000: 2005); "Conformance to requirements" (Crosby, 1979); "Fitness for Use", (Juran and Gryna, 1988); "the total composite product and service characteristics of marketing" (Feigenbaum); "a predictability degree of uniformity and dependability at low cost and suited to the market" (Deming, 1986); Value to some person (Weinberg, 1994). "the characteristics of a product or service that bear on its ability to satisfy stated or implied needs", American Society of Quality; "Products and services that meet or exceed customers' expectations", (Kano, 1884). Japanese companies find the old suggestion of quality, "the degree of conformance to a standard", too narrow and, consequently, have started to use a new definition of quality of "customer satisfaction" (Wayne, 1983). Basic parameters of quality were grouped into three areas: quality of design; quality of conformance; and quality of performance (Wildrick et al, 2002). Quality is multi-dimensional concept and different definitions are appropriate under different circumstances (Viswanadhan, 2006). Harvey and Knight (1996) stated that Quality can be viewed as exceptional, as perfection (or consistency), as fitness for purpose, as value for money and as transformative:

- i. Quality viewed as "exceptional", very high standard
- ii. Quality viewed in terms of "consistency" in the process
- iii. Quality viewed in terms of achieving customer satisfaction
- iv. Quality viewed in term of value for money
- v. Quality viewed as "transformative"

Harvey and Knight (1996) concluded that, while it is not suggested that these five definitions of quality are in any sense mutually exclusive, transformation is a meta-quality concept and the other aspects of quality are possible operationalizations of the transformative process rather than ends in themselves. (Sangeeta et. al. 2004)

### **3. THE DEFINITION OF SERVICE QUALITY**

The characteristics of service quality which is intangible, heterogeneity, inseparability and perishability (Parsuraman, 1985), cannot be measured objectively (Patterson and Johnson, 1993). However, many researchers stated that service quality can be measured by making the comparisons between customers' expectations and perceptions (Zeithaml et al, 1990). The authors have distinguished the service quality into four types namely expected service; desired service; adequate service; and predicted service. Expected services referred to the services customers intend to obtain from the service provider. Desired services is the level of service which the customer wish to obtain. Adequate service refers to the minimum level of services expected from the service provider and finally, predicted services is what the customers believe the company will perform. O'Neil and Palmer (2004) also define service quality as the difference between what a student expects to receive and his/her perceptions of actual delivery. This definition is similar to the one advocated by Zeithaml et al, (1990).

In the context of higher education, students' perceived quality is an antecedent to student satisfaction (Browne et al, 1998). It is noted that positive perceptions of service quality can eventually lead to student satisfaction thus satisfied student would attract more students through word-of-mouth communications.

### **4. DEFINITION OF QUALITY IN HIGHER EDUCATION**

The quality of education is even difficult to define (Macukow, 2000). Some researchers belief that quality cannot be defined in any simple ways (Freeland, 1991; Becher, 1994). Due to this reason, researchers agree that there is no one best way to define and measure service quality (Clewes, 2003). However, there have been some early attempts made to define quality in higher education, Harvey et al (1992), have noted that higher education quality can be defined in many ways and that definition of quality in HE must be "Stakeholder Relative"; "defect avoidance in the education process", (Crosby, 1979); "Knowledge is the totality of quality education", (Reising, 1995); "Estimates of college quality are essentially faith-based", (Hersh, 2005); "the achievement of planned goals", (Cheng, 2003); "value addition in education", (Feigenbaum, 1983); "fitness of educational outcome and experience for use", (Juran and Gryna, 1988); "associated with elitism and the perceived excellence of university education", (Mai, 2005). A growing debate on the definition of quality in higher education has led to the suggestions that service quality should be defined based on student perceptions (Aldridge & Rowley, 1998; Mai, 2005). However, many argue that measurement of service quality should not focus on process alone, it also should include the outcome quality attributes (Baker and Lamb 1993; Richard and Allaway, 1993). Berry et al (1988) stated that quality is conformance to customer specifications; it is the customer's definition of quality, not management's that counts. Sander et al (2000) have highlighted the importance of using customers as the base to measure the service quality. The authors have caution the use of "inside-out" approach to identify the short falls in the service quality. Inside-out approach uses the academic insiders' viewpoints to improve the quality of services in the institutions. This approach of evaluation may lead to misjudgment of the whole quality standings of the institutions thus contributing to poor service quality. One primary

concern with this approach is that it relies too strongly on the input of academics rather than from the students (Joseph et al, 2005). Zeithaml et al, 1990 noted that successful service industries have been shown to think “outside-in”. These firms conduct research to identify the perceptions and expectations of their customers before implementing the service activities thus meeting those customer’s expectations. Perceived service quality to be satisfactory if the customer’s expectations are met (Berry et al, 1985). Gronroos (1982) stated that perceptions minus expectations(P-E) is the foundation of the “gap theory” which refers to disconfirmation.

Owlia and Aspinwall, (1996) conducted a survey to identify the most acceptable definition of service quality in higher education among the selected academics who have published papers in relation to service quality from Europe, North America, Australia and India. Five well known definition of service quality as advocated by I.S.O, Juran, Feigenbaum, Crosby and Deming were used for the survey. Out of 51 responses, the outcome of the survey reveals that 86% felt that at least one of them was appropriate to higher education. The I.S.O definition was favored by 59% respondents. Juran’s definition is favored by 19.6% followed by Feigenbaum’s definition 13.7%, Crosby’s 7.8% and finally Deming’s definition which is about 2%. The result of the survey indicates that defining quality based on the uniformity of products is generally unacceptable in the education sector. The main emphasis was on satisfying customers’ needs (Owlia and Aspinwall, 1996). However, many assessments of institution’s quality still focus on or privilege one aspect of a university’s activities, thereby failing to capture the multidimensional facets of quality (Brook, 2005).

## **5. DIMENSIONS OF SERVICE QUALITY**

The main concern in decision on developing the dimension of service quality is the range of areas which should be included in the survey of the research. Different dimensions of service quality used for different industries. However, there are some similarities on the chosen dimensions (Lagrosen, 2004). Many authors have developed service quality dimensions according to their customers’ preferences. Researchers agree that there is no single dimension which can be applicable for all the service sectors (Carman, 1990; Brown, 1993; Cronin and Taylor, 1994). They also agree that customers must be the determinant of service quality dimensions rather than the management or the academic staff of the respective university. (Parasuraman, 1985; Cronin and Taylor, 1994; Carman, 1990; Lagrosen, 2004; Madsen and Carlsson; Lee et al, 2000).

Developing a service quality model to measure the student’s perception on quality is a very complex and tedious task because the service quality dimensions cover many areas and therefore, and it is not possible to cover all (Hadikoemoro.S, 2002). Due to this reason, the researchers have only included those important elements of dimensions in the survey. Parasuraman et al, (1991) initially developed ten dimensions and later categorize it into five dimensions. The earlier ten service quality dimensions developed by Parasuraman et al, 1985 are as follows:-

- i. Reliability: the service is carried out in the way it is promised;
- ii. Responsiveness: services are carried out promptly according to the needs of the customers;
- iii. Competence : the staff of the service provider have the knowledge and skills required for delivering the service in a proper way;

- iv. Access : concerns, e.g. opening hours, physical location, etc;
- v. Courtesy:- the staff are polite, friendly, respectful, etc;
- vi. Communication : keeping the customers informed in a language that they can understand and listening to them;
- vii. Credibility: the service provider is trustworthy, believable and honest;
- viii. Security: freedom from danger, risk or doubt;
- ix. Understanding the customer : the service provider makes an effort to understand the needs and wants of the individual customers;
- x. Tangibles: physical objects that are needed for carrying out the service such as facilities, equipment, etc;

Through an empirical test, the authors later condensed the ten dimensions into five. (Parasuraman and Berry, 1991; Zeithaml et al, 1990) In their study, the data on the 22 attributes were factor analyzed and resulted in five dimensions as follows:-:-

- i. Tangibles: the physical facilities, equipment, appearance of personnel;
- ii. Reliability: the ability to perform the desired service dependably, accurately, and consistently;
- iii. Responsiveness: the willingness to provide prompt service and help customers;
- iv. Assurance: employees' knowledge, courtesy, and ability to convey trust and confidence; and
- v. Empathy: the provision of caring, individualized attention to customers.

In the study above, overall quality perception scores were regressed on the SERVQUAL scores of the individual dimensions, and  $R^2$  appeared 0.28~0.52. Reliability dimension was the most important and empathy dimension was the least important in all four industries examined.

Gronroos (1988) identifies six criteria of good perceived service quality.

- i. Professionalism and skill: customers see the service provider as knowledgeable and able to solve their problems in a professional way.
- ii. Attitudes and behavior: customers perceive a genuine, friendly concern for them and their problems.
- iii. Access and flexibility: customers feel that they have easy, timely access and that the service provider is prepared to adjust to their needs.
- iv. Reliability and trustworthiness: customers can trust the service provider to keep promises and act in their best interests.
- v. Recovery: customers know that immediate corrective action will be taken if anything goes wrong.
- vi. Reputation and credibility: customers believe that the brand image stands for good performance and accepted values.

Quality dimensions, according to Gronroos (1990), can be classified into three groups: technical quality, functional quality and corporate image. This is similar to those proposed by Lehtinen and Lehtinen (1991) - i.e. physical quality, interactive quality and corporate quality. The dimensions associated with technical quality are those that can objectively be measured regardless of customers' opinion, while those concerned with functional quality are related to

the interaction between the provider and recipient of the service and are often perceived in a subjective manner.

Carney (1994) proposed comprehensive nineteen variables/attributes in studying a college's image i.e. student qualification (academic), student qualities (personal), faculty-student interaction, quality instruction (faculty), variety of courses, academic reputation, class size, career preparation, athletic programs, student activities (social life), community service, facilities and equipment, location, physical appearance (campus), on-campus residence, friendly, caring atmosphere, religious atmosphere, safe campus, cost/financial aid. Although the variables were developed under the context of college image, most of the variables noted are highly relevant to the measurement of service quality.

Athiyaman (1997) used eight characteristics to examine university education services namely, teaching students well, availability of staff for student consultation, library services, computing facilities, recreational facilities, class sizes, level and difficulty of subject content and student workload. The author further noted that “consumer satisfaction is similar to attitude, but it is short-term and results from an evaluation of a specific consumption experience.” (Athiyaman 1997, p.532).

Lee et al (2000) explained that the two of the total quality experience variables ‘overall impression of the school’ and ‘overall impression of the education quality’ are the determinant variables in predicting the overall satisfaction.

Brooks (2005) stated that the measurement of quality should encompass more university activities. The author recommends the following criteria to assess a quality of a university:-

- i. Reputation
- ii. Faculty Research Productivity
- iii. Student Educational Experiences and Outcomes
  - Program Characteristics: Counts of degree issued; financial support; fellowship grant support; teaching assistantship
  - Program Effectiveness: Timeline of their programme; proportion of students; completing their intended degree programme
  - Student Satisfaction: Classroom; co-curricular activities; interaction with faculty and peers; instructions; campus life
  - Student Outcome: Assessment of learning and career outcomes of educational programs

Sangeeta et al (2004) noted that it is necessary to identify customers’ requirements and the design characteristics that make up an educational system. The authors also have highlighted the importance to compare the perceptions of the customers relating to those requirements and characteristics with their expectations and thus, determine the service quality. As far as customer requirements were concerned, the tests for validity and reliability identified a total of 26 items, which were grouped under five factors/constructs

- i. Competence: Appropriate physical facilities/infrastructure, faculty’s expertise, faculty’s teaching ability and skills, sufficient faculty/support staff
- ii. Attitude: Effective problem solving, orientation towards achievement, healthy competitive and collegial environment
- iii. Content: Learn to apply, clarity of course objectives, relevance of curriculum to future needs, flexibility of knowledge being cross disciplinary
- iv. Delivery: Ease of contract/access to teachers and administrative staff, effective

- v. Reliability: Clearly specified values and aims, consistency of practice, clearly specified policies/guidelines, fairly and firmly-enforced rules and regulations, adherence to course objectives

Hadikoemoro (2002 ) captured thirty five items of service quality after two focus group interviews conducted at private and public universities. A total of twenty eight items were identified through factor analysis using varimax rotation. Based on a second factor analysis, those items were categorized into five dimensions as follows:-

- i. Academic services: ability of the university to perform service dependably and accurately, and the completeness of academic-support facilities.
- ii. Readiness and attentiveness: university willingness and attentiveness to help students, and provide prompt service.
- iii. Fair and impartial: ability to implement democratic campus regulation and apply discipline to all members.
- iv. Tangible: appearance of the university based on complete and modern equipments, physical facilities and neat appearing employees.
- v. General attitudes: fairness of grading and courteous handling of students problems

Owlia and Aspinwall (1996), developed 30 attributes called “quality characteristics” after conducting thorough literature reviews on service quality research papers. Based on the similarities, the service quality attributes were grouped into six dimensions as follows:-

- i. Tangibles: Sufficient equipment/facilities, modern equipment/facilities; ease of access; visually appealing environment; support services (accommodation, sports,...)
- ii. Competence: Sufficient (academic) staff; theoretical knowledge, qualifications; practical knowledge; up to date; teaching expertise, communication
- iii. Attitude: Understanding student’s needs; willingness to help; availability for guidance and advisory; giving personal attention; emotion, courtesy
- iv. Content: Relevance of curriculum to the future jobs of students; effectiveness; containing primary knowledge skills; completeness, use of computer; communication skills and team working; flexibility of knowledge, being cross-disciplinary
- v. Delivery: Effective presentation; sequencing, timeliness; consistency; fairness of examinations ; feedback from students; encouraging students
- vi. Reliability: Trustworthiness; giving valid award; keeping promises, match to the goals; handling complaints and solving problems

The authors re-grouped the dimensions into seven dimensions after conducting factor analysis. Following are the dimensions developed under the new groupings namely academic resources, support services, competence, attitude, delivery, content and reliability. The authors conducted three validity tests on the seven dimensions in which they found three dimensions were not sufficiently valid to be included in the framework of quality measurement. Finally, they recommended academic resources, competence, attitude and content to be used as a framework for quality measurement. (Owlia and Aspinwall, 1996).

## 6. FINDINGS

Table in Appendix 1 shows the comparisons of different service quality dimensions used by the abovementioned researchers. The following findings were made after making the comparisons between different dimensions of service quality:-

- i. There are significant similarities and also differences in the dimensions of service quality developed and used by various researchers.
- ii. Each of the developed dimensions are unique, therefore it support the hypothesis that there are no single set of dimension of service quality which are applicable and suitable for all types of service quality research.
- iii. Service quality dimension varies according to customers, research objectives, institution, situation, environment and time.
- iv. All the chosen dimensions for each of the studies are tailor made to meet different customers' perceptions and expectations
- v. Items used to explain each dimensions varies according to research objective and customer group.
- vi. Each dimensions used are acceptable and correct with qualitative and quantitative justifications.
- vii. None of the dimensions are applicable for all type of service quality research without making necessary modifications.
- viii. The best way to identify the dimensions of service quality is by asking the customers.
- ix. It is not possible to study all the dimensions of service quality under one survey.

## 7. CONCLUSION

Service quality in higher education is important for success of an institution (Landrum, 2007). Therefore, the dimensions of service quality should reflect the customers' expectations and perceptions in total. Students as a customer should be the determinant of the dimension of service quality rather than the staff or the academics. Service quality dimensions cover broad spectrum of area and items. Students perceptions and expectations on the service quality are complex, different and subjective. Therefore, it is suggested that the researchers test the validity and reliability of the chosen dimensions before drawing any conclusion from the research findings.

## REFERENCES

- Aldridge, S., & Rowley, J. (1998). Measuring Customer Satisfaction in Higher Education. *Quality Assurance in Education*, 6(4), 197-204.
- Angela, R. (2006). Student Services: A Student's Eye View. *College and University*, 81(2), 65.
- Arambewela, R., & Hall, J. (2006). A comparative analysis of international education satisfaction using servqual. *Journal of Services Research*, 6, 141-163.



- Athiyaman, A. (1997). Linking student satisfaction and service quality perceptions: The case of university education. *European Journal of Marketing*, 31(7/8), 528-540.
- Baker, J., & Lamb, C. J. (1993). A gap Analysis of Professional Service Quality. *Journal of Professional Services Marketing*, 31(7), 528-540.
- Becher, T. (1994). Quality Assurance and Disciplinary Differences. *The Australian Universities' Review*, 37(1), 4-7.
- Ben, A. M. (2007). Identifying the needs of customers in higher education. *Education*, 127(3), 332.
- Berry, L. L., Parasuraman, A., & Zeithaml, V. A. (1988). The Service-Quality Puzzle. *Business Horizons*, 31(5), 35.
- Berry, L. L., Parasuraman, A., & Zeithaml, V. A. (1988). The Service-Quality Puzzle. *Business Horizons*, 31(5), 35.
- Berry, L. L., Wall, E. A., & Carbone, L. P. (2006). Service Clues and Customer Assessment of the Service Experience: Lessons from Marketing. *Academy of Management Perspectives*, 20(2), 43-57.
- Boshoff, C., & Gray, B. (2004). The relationships between service quality, customer satisfaction and buying intentions in the private hospital industry. *South African Journal of Business Management*, 35(4), 27-37.
- Brooks, R. L. (2005). Measuring University Quality. *Review of Higher Education*, 29(1), 1-21.
- Brown, T. J., Churchill Jr, G. A., & Peter, J. P. (1993). Research Note: Improving the Measurement of Service Quality. *Journal of Retailing*, 69(1), 127.
- Browne, B., Kaldenberg, D., Browne, W., & Brown, D. (1998). Student as customers: factors affecting satisfaction and assessments of institutional quality. *Journal of Marketing for Higher Education*, 8(3), 1-14.
- Buttle, F. (1996). SERVQUAL: Review, critique, research agenda. *European Journal of Marketing*, 30(1), 8.
- Carman, J. M. (1990). Consumer Perceptions of Service Quality: An Assessment of the SERVQUAL Dimensions. *Journal of Retailing*, 66(1), 33.
- Carman, J. M. (1990). Consumer Perceptions of Service Quality: An Assessment of the SERVQUAL Dimensions. *Journal of Retailing*, 66(1), 33.

- Carney, R. (1994). *Building an Image*. . Paper presented at the Proceedings Symposium for the Marketing of Higher Education, New Orleans, Louisiana: American Marketing Association.
- Cheng, Y. C. (2003). Quality assurance in education: Internal, interface, and future. *Quality Assurance in Education, 11*(4), 202-214.
- Clewes, D. (2003). A student-centred conceptual model of service quality in higher education. *Quality in Higher Education, 9*(1), 69-85.
- Cronin Jr, J. J., & Taylor, S. A. (1994). SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations. *Journal of Marketing, 58*(1), 125.
- Crosby, P. B. (Ed.). (1979). *Quality is free*. New York: MacGraw-Hill.
- Deming, W. E. (1986). *Out of Crisis*. Cambridge University Press.
- Feigenbaum, A. V. (1983). *Total Quality Control* (3rd ed.). New York: McGraw-Hill.
- Freeland, J. (1991). Quality of what and quality for whom? In J. Chapman, Angus & G. Burke (Eds.), *Improving the Quality of Australian Schools*. Hawthorn, Victoria: Australian Council for Educational Research.
- Gronroos, C. (1982). A service quality model and its marketing implications. *European Journal of Marketing, 18*(4), 36-44.
- Gronroos, C. (1988). Service Quality: The Six Criteria Of Good Perceived Service. *Review of Business, 9*(3), 10.
- Gronroos, C. (1990). *Service Management and Marketing*: Lexington, MA, Lexington Books.
- Hadikoemoro, S. (2002). *A comparison of public and private university students' expectations and perceptions of service quality in Jakarta, Indonesia*. Unpublished D.B.A., Nova Southeastern University, United States -- Florida.
- Harvey, L., Burrows, A., & Green, D. (1992). Criteria for quality in higher education. *Report of the QHE Project, The University of Central England, Birmingham*.
- Harvey, L., & Knight, P. T. (1996). *Transforming Higher Education. SRHE and Open University Press, Buckingham*.
- Hersh, R. H. (2005). What does college teach? It's time to put an end to "faith-based" acceptance of higher education's quality. *The Atlantic Monthly, 296*, 140.
- Hill, F. M. (1995). Managing service quality in higher education: the role of the student as primary consumer. *Quality Assurance in Education, 3*(3), 10.
- ISO9000 (2005), *Quality management systems-Fundamentals and vocabulary*.

- Joseph, M., Yakhou, M., & Stone, G. (2005). An educational institution's quest for service quality: customers' perspective. *Quality Assurance in Education, 13*(1), 66.
- Juran, J. M., & Gryna, F. M. (1988). *Juran's Quality Control Handbook*: McGraw-Hill.
- Kano. (1984). Attractive quality and must-be quality. *The Journal of the Japanese Society for Quality Control, 39-48*.
- Lagrosen, S., Roxana, S.-H., & Markus, L. (2004). Examination of the dimensions of quality in higher education. *Quality Assurance in Education, 12*(2), 61.
- Landrum, H., Prybutok, V. R., & Zhang, X. (2007). A comparison of Magal's service quality instrument with SERPERF. *Information and Management, 44*, 104-113.
- Lee, H., Lee, Y., & Yoo, D. (2000). The determinants of perceived service quality and its relationship with satisfaction. *Journal of Services Marketing, 14*(2/3), 217.
- Lehtinen, U., & Lehtinen, J. R. (1991). Two Approaches to Service Quality Dimensions. *The Service Industries Journal, 11*(3), 287.
- Macukow, B. (2000). Education Quality in the Warsaw University of Technology. *European Journal Of Engineering Education, 25*(1), 9.
- Madsen, O. N., & Carlsson, R. (1995). Total Quality in education: a case study. *Total Quality Management, 6*(5&6).
- Mai, L.-W. (2005). A Comparative Study Between UK and US: The Student Satisfaction in Higher Education and its Influential Factors. *Journal of Marketing Management, 21*(7/8), 859-878.
- Marilyn, R. (2005). Marketing education: A review of service quality perceptions among international students. *International Journal of Contemporary Hospitality Management, 17*(1), 65.
- Owlia, M. S., & Aspinwall, E. M. (1996). Quality in higher education--a survey. *Total Quality Management, 7*(2), 161-171.
- Parasuraman, A. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing (pre-1986), 49*(000004), 41.
- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). Understanding Customer Expectations of Service. *Sloan Management Review, 32*(3), 39.
- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1993). Research Note: More on Improving Service Quality Measurement. *Journal of Retailing, 69*(1), 140.

- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). Servqual: A Multiple-Item Scale For Measuring Consumer Perc. *Journal of Retailing*, 64(1), 12.
- Reising, R. W. (1995). Quality in Education. *The Clearing House*, 68(4), 197.
- Sander, P., Keith, S., Malcolm, K., & David, C. (2000). University students' expectations of teaching. *Studies in Higher Education*, 25(3), 309.
- Sangeeta, S., Banwet, D. K., & Karunes, S. (2004). Customer requirement constructs: the premise for TQM in education: A comparative study of select engineering and management institutions in the Indian context. *International Journal of Productivity and Performance Management*, 53(5/6), 499.
- Sohail, M. S., Rajadurai, J., & Rahman, N. A. A. (2003). Managing quality in higher education: a Malaysian case study. *The International Journal of Educational Management*, 17(4), 141-146.
- Taylor, S. A., & Baker, T. L. (1994). An Assessment of the Relationship Between Service Quality and Customer Satisfaction in the Formation of Consumers' Purchase Intentions. *Journal of Retailing*, 70(2), 163-178.
- Telford, R., & Masson, R. (2005). The Congruence of quality values in higher education. *Quality Assurance in Education*, 13(2), 107-109.
- Viswanadhan, K. G. (2006). Quality Assessment of Indian Engineering Programs: An Outcome-based Perspective. *South Asian Journal of Management*, 13(3), 76.
- Voss, R., Gruber, T., & Szmigin, I. (2007). Service quality in higher education: The role of student expectations. *Journal of Business Research*, 60(9), 949-959.
- Wayne, S. R. (1983). Quality control circle and company wide quality control", . *Quality Progress*, October, 14-17.
- Weinberg, G. M. (1994). *Quality Software Management: Congruent Action (Quality Software Management)* (Vol. 3): Dorset House Publishing.
- Widrick, S. M., Mergen, E., & Grant, D. (2002). Measuring the dimensions of quality in higher education. *Total Quality Management*, 13(1), 123-131.
- Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1990). Delivering Quality Service: balancing customer perceptions and expectations. *New York, Free Press*.
- Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1990). Delivering Quality Service: balancing customer perceptions and expectations. *New York, Free Press*.

Appendix 1

<b>Parasuraman et al, 1991</b>	<b>Gronroos, 1998;</b>	<b>Carney, 1994</b>	<b>Athiyaman, 1997</b>	<b>Brooks, 2005</b>	<b>*Sangeeta, 2004</b>	<b>Hadikoemoro, 2002</b>	<b>Owlia &amp; Aspinwall</b>
Reliability	Reputation & credibility	College and academic reputation	Level & difficulty of subject content & student workload	Reputation; program features; career outcome	Reliability, Orientation towards achievement	Readiness and Attentiveness	Content; Reliability
Tangibles		Campus	Library services, computing & recreational facilities, class size		Physical facilities; adequate and appropriate classroom	Tangibles	Tangibles
Responsiveness	Access & flexibility	Faculty-student interaction; financial support	Teaching quality, consultation	Financial support	Sufficient staff, access to staff and teachers	Readiness and Attentiveness	Delivery
Assurance	Recovery; Professionalism skill,	Instruction quality, faculty,		Faculty research; teaching assistantship; Fellowship grant; Instructions;	Faculty expertise and sufficient staff	Fair and Impartial	Competence

Empathy	Attitudes & Behaviour	Friendly and caring atmosphere	Interaction with faculties	Effective problem solving	General attitude	Attitude
		Social life	Proportion of students, co-curriculum; interaction with peers; campus life	Healthy, competitive & collegial environment		
		Student quality				
		Religious atmosphere				
		Location				
					Academic services and facilities	