Education Management: Educational Service Quality and Customer Satisfaction Index amongst Public Higher Educational Institutions

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ABSTRACT---- ***This paper aims to investigate the importance, expectation, perception, and satisfaction of students at public higher educational institutions in Malaysia with regard to educational service quality and customer satisfaction. Another objective of this paper is to propose an index for Educational Service Quality and Customer Satisfaction (ESQCSi). The sub-dimensions of Educational Service Quality according to this model are reliability, assurance, empathy, responsiveness, tangibles (program quality and servicescapes), communication, knowledge/ expertise, systems/secondary services, social responsibility and self-development.A modified SERVQUAL instrument was used to gather information specifically for higher education. This instrument used ten sub-dimensions or variables instead of the five variables in the original SERVQUAL. The data was analyzed using the American Customer Satisfaction Index(ACSI) method. The index for Educational Service Quality (ESQ) was -12.1316 and the index for Customer Satisfaction (CS) was 63.6187. Therefore, the index for ESQCSi was purported to be 51.4871.The Practical implications of this research is that academics and administrators at higher educational institutions can use this technique to allocate organizational resources and prioritize their efforts.***

Keywords--- Customer satisfaction, educational service quality, and education management

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1. INTRODUCTION

Education has for years been a 'commodity' spurning big and small businesses. Now, education is big business. Higher education can contribute to the economy of a nation. Today, the higher education sector is at a crossroad where it has become a global business and universities must continuously explore options for exporting higher education services. There is now fierce competition in exploiting the various outcomes of research and innovation. At the same time, universities are expected to deliver high quality educational services which are relevant to the market place and leading edge. Elements of a quality system of education are an education system relevant to changes in the global environment, ability to produce skilled work force who are able to compete successfully in the global market, establishment of citizens with high moral values, knowledgeable, and tolerant, and the inculcation of life-long learning culture (Mahzan, 2004). The European University Association (2005) offered various definitions for quality but did not impose any of the definition on higher educational institutions so as to promote discussion in every institution and to ensure ownership of any definition that is adopted. The guidelines offered the following list of definitions:

- Quality as fitness for purpose
- Quality as compliance (zero errors)
- Quality as customer satisfaction
- Quality as excellence
- Quality as value for money
- Quality as transformation (process of changing the customer)
- Quality as enhancement (process of changing the institution)
- Quality as control (punitive/rewarding process of quality assurance)

The fundamental to effective delivery of services is the determination of customer satisfaction. Being able to successfully judge levels of customer satisfaction and then applying that knowledge gives a hospitality manager an advantage over competitors through product differentiation, increased customer retention, and positive word-of-mouth communication. A great deal of research has been devoted to investigating and understanding the process by which customers make judgments about a particular service experience, despite the many theoretical and methodological difficulties (Yuksel&Rimmington, 1998). According to Gundersen*et al.* (1996) while attempting to provide a theoretical explanation of the concept, most academics have focused on conceptual issues and underlying processes and not much attention has been given to the more pragmatic task of measurement.

The purpose of this study is to investigate the importance, expectation, perception and satisfaction of students at public higher educational institutions in Malaysia with regard to the educational service quality and customer satisfaction. The sub-dimensions or attributes considered for each of the constructs are reliability, tangibles, responsiveness, assurance, empathy, communication, knowledge/ expertise, systems/ secondary services, social responsibility and self-development. This study further endeavor to propose an index for Educational Service Quality and Customer Satisfaction Index (ESQCSi) that can be used by higher educational institutions to measure the level of educational service quality and customer satisfaction index from the perspective of their students.

2. FRAMEWORK FOR EDUCATIONAL SERVICE QUALITY AND CUSTOMER SATISFACTION

According to Parasuraman*et al.* (1985), service quality is a cognitively oriented construct that looks overall at factors that shape customer perceptions, whereas Oliver (1997) pointed out that satisfaction is an affective reaction to service encounters. Service quality focuses on the interaction between customers and service providers, and the gap or difference between expectations about service provision and perceptions about how the service was actually provided. Satisfaction, on the other hand, does not involve gap analysis.

Based on the Gaps Model, expectations of service quality are subjective and comprise desired wants, or the extent to which customers (consumers) believe a particular dimension or attribute is essential for an excellent service provider, and perceptions of service quality are judgments about service performance (Parasuraman*et al.*, 1991). Additionally, expectations are not static, they change and evolve over time.

The confirmation/ disconfirmation process, which influences the operation of the Gaps Model, suggests that expectations provide a frame of reference against which customers (consumers) experiences can be gauged. Customers form their expectations prior to purchasing or using a product or service. Factors that influence the formation of their expectations are demographics, word-of-mouth communication, personal needs, previous experience, external communication to customers and ethos in higher education. These expectations become a basis against which to evaluate actual performance. After gaining some experience with a service (or product), the customer can compare his or her expectations and perceptions. His or her perception is:

- Confirmed (if performance and expectations match, PS = ES);
- Negatively disconfirmed (if performances exceed expectations, PS > ES); or
- Positively disconfirmed (if expectations exceed performances, ES > PS).

According to Palkar (2004), the following three concepts are related to the scope of service quality to be used as a variable:

- *Service quality attributes*: defined as a quality that can be classified by generic characters. In this study it is assumed that service quality is classified to ten attributes (sub-dimensions), i.e. reliability, tangibles, responsiveness, assurance, empathy, communication, knowledge, systems, social responsibility and self-development.
- *Service quality elements*: defined as an element that composes overall service quality. A customer perceives overall service quality with the total amount of individual's perception for all the quality elements. In this research, 50 items were used to measure the quality element scales.
- *Overall service quality*: defined as overall perception about the quality of service provided by the service providers.

The following analytical model is proposed and will be used in this study.

Table 1: Conceptual and Operational Definitions

Conceptual definition	**Operational definition**
Service quality is a measure of how well the delivered level of service matches customer expectations. Accordingly, if a service provider is to deliver high quality service, it must conform to customer expectations on a consistent basis over time (Lewis and Booms, 1983)	Educational Service Quality Dimensions evaluated: 1.Reliability: ability to perform the promised service dependably and accurately 2.Tangibles: program quality, physical facilities, equipment, appearance of personnel 3.Responsiveness: willingness to help and provide prompt service 4.Assurance: courtesy of staff and ability to inspire confidence 5.Empathy: caring, individualized attention the academic staff provides its "customers" 6.Communication: one to one communication and in class; dissemination of information 7.Knowledge/Expertise: subject knowledge and research orientation 8. Systems/Secondary services: enrolment procedures, parking facilities, library, etc. 9. Social Responsibility: fair and equal treatment, ethical behavior 10. Self-development: Intellectual development, character building, etc.
Conceptual definition	**Operational definition**
Customer satisfaction is the consumer's [customer's] fulfillment response. It is a judgment that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption –related fulfillment, including levels of under-or over-fulfillment (Oliver, 1997)	Response: Fulfillment response/ judgment [perception] Focus: Educational services Time: Post-consumption and/or during consumption

The schematic diagram showing the relationship between the quality dimensions and service quality and customer satisfaction is shown in Figure 1. The Service Quality and Customer Saisfaction Model as depicted in Figure 1 was adapted and modified from a combination of models as proposed by:

- V.Zeithaml, A.Parasuraman, and L.Berry, (1990). *Delivering Quality Service*, New York: Free Press, p 46;
- Soutar and McNeil, (1996). Measuring Service Quality in Higher Institution, *Journal of Educational Administration*, Vol.34 No.1, pp 72-82;
- G.S.Sureshchandar*et. al.*(2001), Customer Perception of Service Quality – A Critique, *Total Quality Management*, Vol.12, pp 111-124, and
- Oliver, R.L. (1993). A conceptual model of service quality and customer satisfaction: compatible goals, different concepts, in Swartz, T.A., Bowen, D.E. and Brown, S.W. (Eds), *Advances in Service Marketing and Management*, Vol. 2, JAI Press, Greenwich, CT, pp 65-85.

Researchers defined consumer (customer) satisfaction in various ways. Some of the definitions are fundamentally inconsistent with one another, while other definitions haveoverlapping components but still partially inconsistent. Table 2 below depicts the conceptual and operational definitions of consumer (customer) satisfaction.

Table 2: Conceptual and Operational Definitions in Consumer Satisfaction Literature

Source	Conceptual Definition
Oliver, 1997	The consumer's fulfillment response. It is a judgment that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment (p.13).
Halstead, Hartman, and Schmidt, 1994	A transaction specific affective response resulting from the customer's comparison of product performance to some pre-purchase standard (e.g., Hunt, 1977; Oliver, 1989)(p.122).
Mano and Oliver, 1993	(Product specification) is an attitude-like post-consumption evaluative judgment (Hunt, 1977) varying along the hedonic continuum (Oliver, 1989; Westbrook and Oliver, 1991) (p.454).
Fornell, 1992	An overall post-purchase evaluation (p.11)
Oliver, 1992	Examined whether satisfaction was an emotion. Concluded that satisfaction is a summary attribute phenomenon co-existing with other consumption emotions. (p.242).
Westbrook and Oliver, 1991	A post-choice evaluative judgment concerning a specific purchase selection (Day, 1984) (p.84).
Oliver and Swan, 1989	No conceptual definition. (with the salesperson) a function of fairness, preference, and disconfirmation. (pp. 28-29).
Tse and Wilton, 1988	The consumer's response to the evaluation of the perceived discrepancy between prior expectations (or some norm of performance) and the actual performance of the product as perceived after its consumption. (p.204).
Cadotte, Woodruff and Jenkins, 1987	Conceptualized as a feeling developed from an evaluation of the use experience. (p.305).
Westbrook, 1987	Global evaluative judgment about product usage/consumption (p.260). Also cited Hunt (1977)
Day, 1984	The evaluative response to the current consumption event … the consumer's response in a particular consumption experience to the evaluation of the perceived discrepancy between prior expectations (or some other norm of performance) and the actual performance of the product perceived after its acquisition (p.496)
Bearden and Teel, 1983	No conceptual definition. A function of consumer expectations operationalized as product attribute beliefs (Olson and Dover, 1979) and disconfirmation (p.22).
LaBarbera and Mazursky, 1983	Post-purchase evaluation. Cited Oliver's (1981) definition: An evaluation of the surprise inherent in a product acquisition and/or consumption experience (p.394).
Westbrook and Reilly, 1983	An emotional response to the experiences provided by and associated with particular products or services purchased, retail outlets, or even molar patterns of behavior such as shopping and buyer behavior, as well as the overall marketplace (p.256). An emotional response triggered by a cognitive evaluative process in which the perceptions of (or beliefs about) an object, action, or condition are compared to one's values (or needs, wants, desires) (p.258).
Churchill and Surprenant, 1982	Conceptually, an outcome of purchase and use resulting from the buyer's comparison of the rewards and costs of the purchase relative to anticipated consequences. Operationally, similar to attitude in that it can be assessed as a summation of satisfaction with various attributes (p.493).
Oliver, 1981	An evaluation of the surprise inherent in a product acquisition and/or consumption experience. In essence, the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience (p.27).
Swan, Trawick and Carroll, 1980	A conscious evaluation or cognitive judgment that the product has performed relatively well or poorly or that the product was suitable for its use/purpose. Another dimension of satisfaction involves affect of feelings toward the product (p.17).
Westbrook, 1980	Refers to the favorability of the individual's subjective evaluation of the various outcomes and experiences associated with using or consuming it (product) (Hunt, 1977) (p.49).
Hunt, 1977	A kind of stepping away from an experience and evaluating it … the evaluation rendered that the experience was at least as good as it was supposed to be (p. 459).
Howard and Sheth, 1969	The buyer's cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone (p. 145)

Source: Giese, J.L. & Cote, J.A. (2000). Defining Consumer Satisfaction.*Journal of the Academy of Marketing Science.*Retrieved January 15, 2004 from http://www.amsreview.org/amsrev/theory/giese01-00.html.

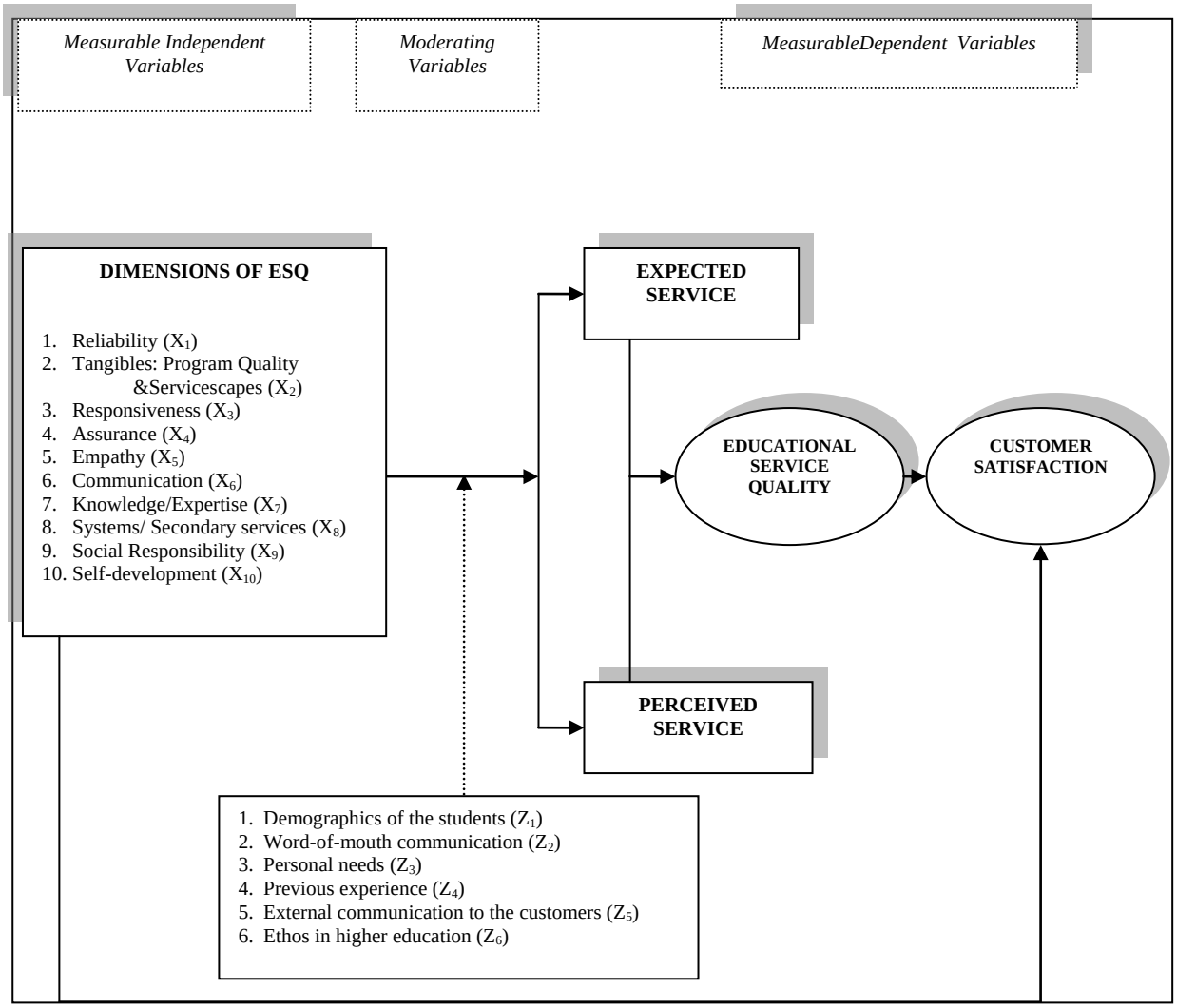

Figure 1: Educational Service Quality and Customer Satisfaction at Public Higher Educational Institutions

The purpose of combining a few models into the Educational Service Quality Model was to incorporate other constructs and measures along with the SERVQUAL dimensions in order to extend and improve the explanatory power of this model. In this study, customer satisfaction was measured along the same sub-dimension as educational service quality (Sureshchandar, 2001)

3. RESEARCH METHODOLOGY

The questionnaires for this study made use of the SERVQUAL instrument developed by Parasuraman*et al.* (1986). However, some changes were made so that it will be more appropriate for tertiary education. According to Foster (2001) the SERVQUAL instrument has many advantages in measuring service quality, such as:

- It is accepted as a *standard* for assessing different dimensions of service quality.
- It has been shown to be *valid* for a number of service situations.
- It has been demonstrated to be *reliable,* meaning that different readers interpret the questions similarly.
- The instrument is *parsimonious* in that it has only 22 items. This means that it can be filled out quickly.
- Finally, it has a standard analysis procedure to aid interpretation and results.

This study aims to establish the level of educational service quality and customer satisfaction at institutions of higher education from the perspective of the students. The sub-dimensions for educational service quality and customer satisfaction[1] are:

[1] Sub-dimensions 1, 3, and 4 were borrowed from SERVQUAL; sub-dimension 2 was borrowed from SERVQUAL, Joseph, M. & Joseph, B. (1998), Sureshchander*et al.* (2001) and Baharuddin (2003); sub-dimension 5 was borrowed

1. Reliability
2. Tangibles (program quality and servicescapes)
3. Responsiveness
4. Assurance
5. Empathy
6. Communication
7. Knowledge/ Expertise
8. Systems/ Secondary Services
9. Social Responsibility
10. Self-development

4. FINDINGS

4.1 ReliabilityAnalysis

The overall Cronbach's alpha reliability coefficient scores for the instruments used in the pilot study was 0.9677, indicating an overall higher reliability factor than the first Parasuraman*et al.* (1988) study which had a Cronbach's alpha of 0.92. The robustness of item selection was tested by measuring the impact of deleting an item from a dimension. The focus groups technique was employed to check the validity of the questionnaire. A group of participants from the Faculty of Business and Economics, UniversitiPendidikan Sultan Idris, Malaysia were selected to participate in the focus group discussion and were invited to give comments and opinion regarding the measure of the constructs.

This study employed the focus group technique to gather ideas and insights aimed at structuring questionnaire, especially to measure self-development, word-of-mouth communication, personal needs, previous experience, external communication to customers and ethos in higher education. Currently, this technique is one of the most frequently used technique in behavioral research. It has been proven to be productive (Chirchill, Jr., 1991) for: generating information helpful in structuring questionnaire and generating hypotheses that can be tested quantitatively

The individual construct under investigation had the reliability coefficient scores as shown in table 3.

Table 3: Cronbach's Alpha Reliability coefficient of the sub-dimensions

Constructs	Alpha for expectation	Alpha for perception
Reliability	0.8036	0.8038
Tangibles (Program Quality and Servicescapes)	0.8649	0.8896
Responsiveness	0.8259	0.8733
Assurance	0.8907	0.7839
Empathy	0.8899	0.9360
Communication	0.7771	0.7289
Knowledge/Expertise	0.8089	0.7609
Systems/Secondary services	0.8440	0.7526
Social Responsibility	0.7930	0.8406
Self-Development	0.9493	0.9626
Importance	0.9285	
Satisfaction	0.7490	
Personal Needs	0.8809	
Word-of-Mouth Communication	0.8470	
Previous Experience	0.7390	
External Communication	0.9212	
Ethos in Higher Education	0.7869	
Other Measures	0.7869	

from IUPUI (1994), Joseph, M & Joseph, B. (1998), Ford, J. *et al.*(1999), Martensen, A. *et al.* (2000), Price, I. *et al.* (2001) and Sureshchandar*et al.*(2001); Sub-dimensions 6, 7, and 8 were borrowed from Soutar& McNeil (1996); 9 was borrowed from Sureshchander et al. (2001); 10 was developed through review of the literature.

4.2 Educational Service Quality

The radar chart as shown in figure 2 below shows the postgraduate results for all the educational service quality sub-dimensions or attributes. Each axis represents one sub-dimension. On each axis, the postgraduates mean scores for expectation, perception, importance, and satisfaction with regard to the educational service quality sub-dimensions are shown. This radar chart can be used by administrators of public higher educational institutions to gauge their present position with regard to service quality and satisfaction, and where to concentrate resources in order to improve service quality and satisfaction.

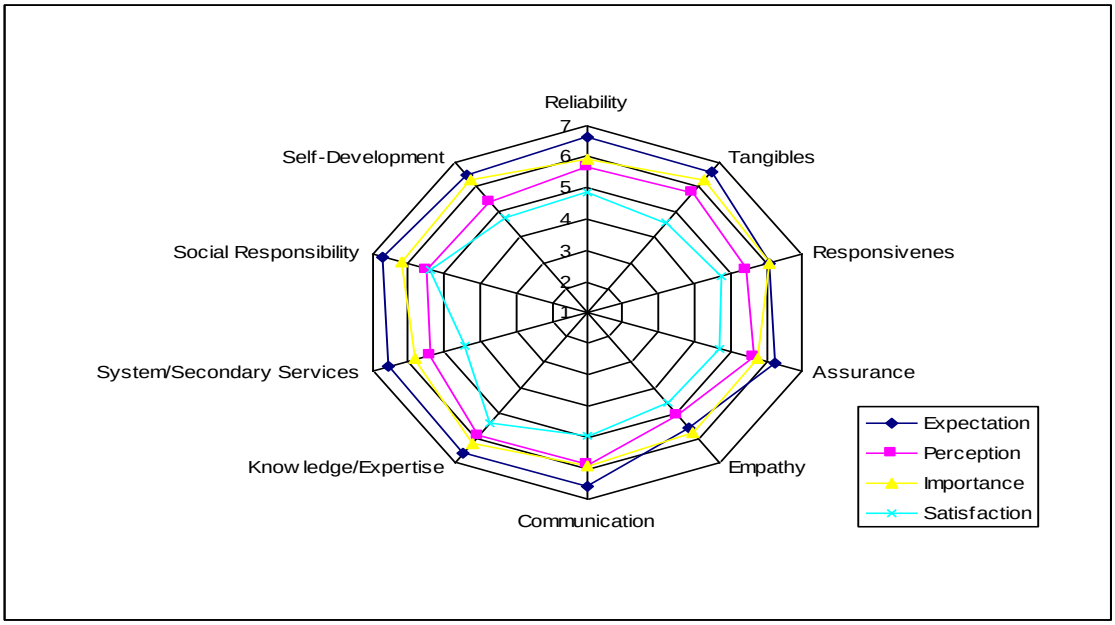

Figure 2: Radar chart for Public Higher Educational Institutions

4.3 Educational Service Quality and Customer Satisfaction Index

The measurement of service quality with regard to each dimensions of service quality is displayed in table 4 below.

Table 4: Service Quality Score

Dimension	N	Perception Mean	Expectation Mean	Weight[2]
Reliability	517	5.6454	6.5854	0.0981
Tangibles	517	5.7328	6.5584	0.1043
Responsiveness	517	5.3849	6.0658	0.1010
Assurance	517	5.5893	6.1747	0.0956
Empathy	517	5.0261	5.5368	0.0959
Communication	517	5.8439	6.5384	0.0987
Knowledge/Expertise	517	5.8704	6.5238	0.1024
Systems/Secondary Services	517	5.3443	6.5027	0.0965
Social Responsibility	517	5.4534	6.7072	0.1028
Self-development	517	5.3520	6.3998	0.1046

The service quality dimensions are positively associated with each other. However the multi-collinearity is slight. The Variance Inflaction Factor (VIF) between the dimensions range from 1.405 to 2.108. According to Hair *et al.* (1995), a common cutoff threshold is a tolerance value of 0.10, which corresponds to a VIF value of above 10.

[2] The weights for the sub-dimensions were borrowed from an earlier research by the same researcher entitled "Educational Service Quality at Public Higher Educational Institutions: A Proposed framework and Importance of the sub-dimensions.

Calculating Educational Service Quality Score for PHEIs[3]

Each of the responses to the 10 core educational service quality (ESQ) attributes for perception was transformed from a 1 to 7 scale to a 0 to 100 scale, weighted then summed. This gave a score for perceived educational service quality (PESQ). Next, each of the responses to the 10 core ESQ attributes for expectation was transformed from a 1 to 7 scale to a 0 to 100 scale, weighted then summed. This gave a score for expected educational service quality (EESQ).

Table 5: Educational Service Quality Score for PHEIs

Reliability	(5.6454 – 1)/6 x 100 x 0.0981	7.595229
Tangibles	(5.7328 – 1)/6 x 100 x 0.1043	8.227184
Responsiveness	(5.3849 – 1)/6 x 100 x 0.1010	7.381248
Assurance	(5.5893 – 1)/6 x 100 x 0.0956	7.312285
Empathy	(5.0261 – 1)/6 x 100 x 0.0959	6.43505
Communication	(5.8439 – 1)/6 x 100 x 0.0987	7.968216
Knowledge/Expertise	(5.8704 – 1)/6 x 100 x 0.1024	8.312149
Systems/Secondary Services	(5.3443 – 1)/6 x 100 x 0.0965	6.987083
Social Responsibility	(5.4534 – 1)/6 x 100 x 0.1028	7.630159
Self-development	(5.3520 – 1)/6 x 100 x 0.1046	7.586987
Perceived ESQ for PHEIs		**75.43559**

Reliability	(6.5854 – 1)/6 x 100 x 0.0981	9.132129
Tangibles	(6.5584 – 1)/6 x 100 x 0.1043	9.662352
Responsiveness	(6.0658 – 1)/6 x 100 x 0.1010	8.52743
Assurance	(6.1747 – 1)/6 x 100 x 0.0956	8.245022
Empathy	(5.5368 – 1)/6 x 100 x 0.0959	7.251319
Communication	(6.5384 – 1)/6 x 100 x 0.0987	9.110668
Knowledge/Expertise	(6.5238 – 1)/6 x 100 x 0.1024	9.427285
Systems/Secondary Services	(6.5027 – 1)/6 x 100 x 0.0965	8.850176
Social Responsibility	(6.7072 – 1)/6 x 100 x 0.1028	9.778336
Self-development	(6.3998 – 1)/6 x 100 x 0.1046	7.586987
Expected ESQ for PHEIs		**87.5717**

Educational Service Quality score for PHEIs = (PESQ – EESQ)
= 75.43559 – 87.5717
= **-12.1316**

The level of students' satisfaction with regard to each dimensions of service quality is displayed in Tables 6 and 7.

Table 6: Satisfaction - Total Respondents

Dimension	N	Min	Max	Mean	SD	Mean – SD	Rank Order
Reliability	517	3	7	4.8453	1.0780	3.7673	6
Tangibles	517	3	6	4.5319	0.9949	3.5370	9
Responsiveness	517	3	6	4.7253	0.7713	3.9540	3
Assurance	517	3	7	4.6615	1.0799	3.5816	8
Empathy	517	2	6	4.5706	0.8834	3.6872	7
Communication	517	3	7	4.9091	0.9792	3.9299	4
Knowledge/Expertise	517	4	7	5.3926	0.9206	4.4720	1
Systems/Secondary Services	517	3	7	4.3675	0.9045	3.4630	10
Social Responsibility	517	3	7	5.3559	0.9710	4.3849	2
Self-development	517	3	7	4.7505	0.9613	3.7892	5

[3] Calculating the ACSI Scores (http://www.ohioworkforce.org)

Table 6 above displays students' satisfaction with regard to the service quality dimensions. Students at public higher educational institutions are most satisfied with regard to the knowledge/expertise dimension. This is followed by social responsibility and responsiveness. Students are least satisfied with assurance, tangibles and systems/secondary services. Students are moderately satisfied with self-development which is the most important dimension from the perspective of students at PHEIs.

Calculating Customer Satisfaction Index at PHEIs

Each of the responses to the ten core customer satisfaction attributes was transformed from a 1 to 7 scale to a 0 to 100 scale, weighted then summed.

Table 7: CSI Index at PHEIs

Reliability	(4.8453 – 1)/6 x 100 x 0.0981	6.2862
Tangibles	(4.5319 – 1)/6 x 100 x 0.1043	6.1401
Responsiveness	(4.7253 – 1)/6 x 100 x 0.1010	6.2711
Assurance	(4.6615 – 1)/6 x 100 x 0.0956	5.8345
Empathy	(4.5706 – 1)/6 x 100 x 0.0959	5.7070
Communication	(4.9091 – 1)/6 x 100 x 0.0987	6.4658
Knowledge/Expertise	(5.3926 – 1)/6 x 100 x 0.1024	7.4967
Systems/Secondary services	(4.3675 – 1)/6 x 100 x 0.0965	5.4165
Social responsibility	(5.3559 – 1)/6 x 100 x 0.1028	7.4633
Self-development	(4.7505 – 1)/6 x 100 x 0.1046	6.5375
PHEIs Customer Satisfaction Index Score		**63.6187**

From Table 7, it can be seen that the students at the PHEIs are most satisfied with regard to the knowledge/expertise sub-dimension and least satisfied with regard to the empathy sub-dimension. It is proposed that the index for Educational Service Quality and Customer Satisfaction should take into consideration the score for educational service quality and customer satisfaction.

Therefore,
= ESQ + CS
= -12.1316 + 63.6187
= **51.4871**
Where,
ESQCSi = Educational Service Quality and Customer Satisfaction Index
ESQ = Educational Service Quality
CS = Customer Satisfaction

5. DISCUSSION

5.1 Research Limitations

The present study is cross-sectional in nature. Therefore the results of the study pose some limitations. Since the results of this study are based on a cross-sectional data, no statement of causation, and particularly, the direction of causation can be made. Studies based on associations are not appropriate for causal interpretation (Hopkins and Glass, 1978). Therefore the results should be interpreted within the usual limitations of survey research. In this study, it was not possible for the researcher to control the possible "third factor variable" as in the case with an experimental design. Thus, it was possible that the relationships between the independent and dependent variables are not causal.

A survey research design provides only information with regard to the degree of association or relationship between variables. Therefore, in the present study, whilst it may be speculated that educational service quality depends upon a set of independent variables (reliability, tangibles, responsiveness, assurance, empathy, communication, knowledge/ expertise, systems/ secondary services, social responsibility, and self-development) and moderating variables (demographics of the students, word-of-mouth communication, personal needs, previous experience, external communication to customers, and ethos in higher education), the research design precluded genuine claims of causality.

It would therefore be more appropriate to say that the independent variables demonstrate an ability to predict educational service quality.

Inherent in the present study are some methodological limitations with respect to its strength. The limitations are:

- This study used a seven-point Likert-type scale in which respondents were asked to indicate their degree of agreement towards statements concerning educational service quality, importance of the sub-dimensions, satisfaction with regard to the dimensions and other variables. The use of Likert-type scale, as pointed out by Brown and Swatrz (1989) might result in the possibility of patterned responses, i.e. a tendency for respondents to respond automatically to the statements or questions without paying careful attention to what the statements/ questions intended to address. This problem may be due to different interpretations of respondents to the numbers used in the scale. Although the researcher attempted to define this numbers, it is impossible to ensure that all respondents interpret the score definitions equally.
- The present study used quantitative technique in its design and analysis. It should be noted that quantitative technique has its limitations, especially the use of quantitative technique to translate feelings into number (quantifying feelings). It is suggested that qualitative technique be incorporated in future research. By combining quantitative and qualitative research techniques, the study would benefit from the strength of both and offset the weaknesses of the other.
- This study assumed that the respondents do not misrepresent the truth (consciously or unconsciously). A self-administered survey may be subjected to social desirability bias (Sharma and Mehta, 2005). Social desirability bias (the respondents consciously or unconsciously intended to create a favourable impression), agreement bias (the respondents tended to agree to all the statements) and deliberate falsification are common type of respondent errors in survey research (Zikmund, 2003).

Theoretically, the aim of this study was to generalize to all public higher educational institutions (PHEIs) in Malaysia. However there are some limitations on its generalizability:

- Owing to the lack of resources and time constraint, this study used a cross-sectional descriptive research design. The use of a longitudinal study in future research may reveal added knowledge with regard to service quality and customer satisfaction.
- Participation in this survey was voluntary. Although an invitation to participate was sent to all seventeen public higher educational institutions, only four responded positively to the invitation. It was possible that the PHEIs which decline to participate were different from those which participated.
- This research presented results obtained from the study on students' expectation and perception with regard to the variables understudy. Since the individual respondents were not followed over time, it was not possible to describe the sequence of changes with regard to psychological aspects experienced by the respondents over time.

5.2 Directions for Future Research and Managerial Consequences

Opportunities for future research have emerged as a result of this research. Other than minimizing the limitations outlined earlier, the following aspects would entail further consideration and study:

- The respondents in this study were postgraduate students at PHEIs. The PHEIs were categorized into research universities and non-research universities. Future research should include private universities, academic staff, administrative staff, and employers. This may provide a richer data for analysis. Data taken from multiple sources are better than data taken from a single source (Summers, 2001).
- To introduce an overall trend dimension in the multi-item measures in order to incorporate the time aspect in each sub-dimensions, thus making it possible to measure the perceived direction of change.
- Though the underlying theme of the ESQ instrument addresses the service quality issues at educational institutions, the study has been confined to the higher educational sector, particularly PHEIs. Further research investigating the criticality of the ESQ dimensions in other educational institutions is required in order to effectively generalize the findings across the entire education sector.
- Academics and administrators at higher educational institutions can use the radar chart to allocate organizational resources and to prioritize efforts to ensure educational service quality and customer satisfaction.

Nevertheless, despite the limitations mentioned above, this study provides valuable insight on enhancing knowledge in regards to educational quality as perceived by students in Higher Educational Institutions. Given this knowledge, practitioners will be able to strategically decide on resource allocation needs accordingly in order to attract and retain students. This is especially important, considering that education is now a very competitive industry and quality education is much sought after.

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