Educational Service Quality at Public Higher Educational Institutions: A Proposed Framework and Importance of the Sub-dimensions

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Abstract

The objectives of this paper are to propose a conceptual framework for service quality in higher education from the perspective of the students, to identify the importance of the sub-dimensions and to determine whether there are differences between research universities and non-research universities. The sub-dimensions of Educational Service Quality according to this model are reliability, assurance, empathy, responsiveness, tangibles (program quality and services capes), communication, knowledge/ expertise, systems/secondary services, social responsibility and self-development. A survey instrument was used to gather information. The mean was used to determine the weighted importance of the sub-dimensions. ANOVA was used to determine if there are differences in importance of the sub-dimensions between research universities and non-research universities. In terms of importance, self-development and tangibles are most important, whereas empathy and assurance are least important. However there are methodological limitations as well as generalizability limitations which need some attention. The findings of this research may help academics and administrators allocate their resources. The use of a modified SERVQUAL instrument specifically designed for higher education.

Keywords: Educational service quality, higher education institutions, SERVQUAL

1. Introduction

The shift to the knowledge economy has brought education in all its forms (pre-school, primary school, secondary school, higher education, vocational training, and adult education) back into focus. Education has for years been a 'commodity' spurning big and small businesses. Now, education is big business. Higher education can contribute to the economy (Peters & Roberts, 1999; Kenway *et al*., 1993). The higher education sector is at a crossroads (Ronayne, 2002) 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.

During the 1980s to 1990s, Malaysia spend RM 2-3 billion annually to send 50,000 – 80,000 students overseas (Fong, 1993). The Malaysian government's intention of turning Malaysia into a Center of Academic Excellence is a two pronged strategy. First, the government would like to reduce foreign exchange expenses incurred in sending almost 50,000 Malaysian students for higher education overseas. Second, the government would like to see more foreign students pursuing higher education in Malaysia. The target set under the national education development plan is 50,000 foreign students by the year 2010. This will generate almost RM 1.5 billion for the country. The number of foreign students in Malaysia as of 31 December 2004 was 40,686. As a result the 50,000 foreign students targeted for 2010 has been reviewed and the new target year is 2005 (Minggu, 2005). The Malaysian's government aspiration of establishing Malaysia as a center of academic excellence was further stressed by Mustapa (2006):

> "The Ministry of Higher Education was established in 2004, with a vision of making Malaysia a center of education excellence. I believe that in order to achieve this we need to focus on strong research, effective leadership and management, and impeccable academic standards."

Higher Educational Institutions that adopt quality culture as their philosophy will strive to achieve excellence in service quality and customer satisfaction. Thus the objectives of the study are to propose a conceptual framework for educational service quality in higher education and identify the importance of the sub-dimensions in determining the level of service quality at research universities and non-research universities.

2. Literature Review

2.1 Service quality

In a study conducted by Shank *et al.* (1995) to evaluate service expectations in higher education settings from the perspective of the professional service provider and the students, found that the students expected more from their professors than the professors believe their students expected of them. The researchers proposed that it is possible to manage student expectations to reduce the gap which would result in increased educational service quality and student satisfaction.

Service quality remains as a critical measure of organizational performance in marketing, especially services marketing (Jensen & Markland, 1996). Academic researchers and marketers are keen on accurately measuring service quality in order to understand its essential antecedents and consequences, and to establish methods for improving quality (Palmer & Cole, 1995; Zahorik & Rust, 1992). The global educational marketplace promotes accelerated international linkages, branch campuses, as well as other forms of trans-national education. However, the key to their sustainability is quality (Lenn, 2000). The momentum towards customer service has impelled researchers and practitioners alike to conceptually and empirically study service quality within a wide array of setting i.e. banking, hotel, insurance (Khan et al., 2010; Shaikh & Khan, 2011). However, one setting that has been relatively neglected in service quality research is higher education (Shank *et al*., 1995).

According to Chaffee & Sherr (1992), inadequate attention has been given to quality process from the perspective of quality of the students' experiences. Gundersen *et al.* (1996) noted that most academics have focused on conceptual issues and the underlying processes and not much attention was given to the task of measurement.

Most of the researched and published work on the service quality aspects of higher education has been concentrated on course content and delivery (the academic dimensions), but as a result of the increasingly competitive global environment in which many universities find themselves it is not surprising that the quality of services being offered is now an area receiving much attention (O'Neill, 2000). Due to the increased interest in service quality, a plethora of measurement tools and techniques have been developed, all aimed at measuring service quality and customer satisfaction levels within the education industry (O'Neill, 2000). However there is a tendency for the performance indicators to be written from the educators' perspective. There has been little attempt to approach quality from the students' perspective

(Kadhim et al., 2012). The most basic marketing principle, which suggests that corporate strategy should flow from needs of the customers have not been given much credence in discussion of quality in the higher education sector. According to Chin (2004), *"What is needed is quality and not so much quantity when it comes to institutions of higher education. This is the prerequisite for Malaysia to become a regional center of academic excellence."* The emphasis given by the Malaysian government to the higher education sector was stressed by Khoo (2002):

> "Malaysia is a country which believes in providing the best education for its people. From our nation's track record, you will notice that education, particularly higher education, has always been emphasized by the Government and the private sector can make a significant contribution to its development. Now that Malaysia is moving towards becoming a "regional centre of educational excellence", all the more, higher education is given prominence as we look not only to providing quality education of international standards for Malaysians but also for foreign students."

In the present higher education environment where most universities have quality department to handle quality management systems and where competition in the higher education sector is increasing, universities are being forced to consider the student perspective of quality of services provided. Previously the quality of the academic product was the major focus in the higher education context, but now there is an increased interest in measuring service quality in higher education (Wright & O'Neill, 2003).

Parasuraman *et al.* (1985) postulated that customers generally use ten dimensions when evaluating perceived service quality. The ten service quality determinants are:

- Tangibles – Appearance of physical facilities, equipment, personnel, and communication materials.
- Reliability – Ability to perform the promised service dependably and accurately.
- Responsiveness – Willingness to help customers and provide prompt service.
- Competence – Possession of the required skills and knowledge to perform the service.
- Courtesy – Politeness, respect, consideration, and friendliness.
- Credibility – Trustworthiness, believability, honesty of the service provider.
- Security – Freedom from danger, risk or doubt.
- Access – Approachability and ease of contact.
- Communication – Keeping customers informed in language they can understand and listening to them.
- Understanding the customer – Making the effort to know customers and their needs.

However, in a subsequent study, Zeithaml *et al.* (1990) the number of dimension were reduced to five. The five suggested service quality dimensions are:

- Tangibles (physical facilities, equipment, appearance of personnel)
- Reliability (ability to perform the promised service dependably and accurately)
- Responsiveness (willingness to help and provide prompt service)
- Assurance (knowledge and courtesy of employees and their ability to inspire confidence)
- Empathy (caring, individualized attention the firm provides its customers)

Parasuraman *et al.* (1986) developed the SERVQUAL instrument to study this final gap. This instrument uses five dimensions of service quality which have been found to transcend industry boundary as depicted in Figure 1 below.

This model is a means of describing customer satisfaction or dissatisfaction in the context of service quality. Service quality is defined from the perception of the customers. The perception of the customer is of utmost important here. Thus it becomes important to define service quality from the standpoint of the customer. The SERVQUAL model, developed by Parasuraman *et al.* (1988) highlights five gaps in the

delivery of service which influence a customer judgment about the quality of service received. The gaps are:

1. The *knowledge gap* – the difference between what customers expect of a service and what management perceives the customers expect;

2. The *standards gap* – the difference between what management perceives customers expect and the standards set for service delivery;

3. The *delivery gap* -- the difference between the standards set for service delivery and the actual quality of service delivery.

4. The *communication gap* – the difference between the actual quality of service delivered and the quality of service described in the organization's external communications.

5. The *service gap* – the perceived performance and expectations, which is the function of gaps (1) to (4).

Although the SERVQUAL model was originally developed for the financial services sector, it has been used to measure components of services that generate satisfaction in other service sectors such as telecommunications, healthcare and hospitality (Curry & Sinclair, 2002; van der Wal *et al.* 2002, Sultan & Simpson, 2000). SERVQUAL is based on the underlying premise that service quality can be defined as the extent to which a service meets or exceeds customers' needs or expectations. Therefore, service quality can be operationally defined as the difference between customer expectations of service and perceptions of actual service delivery (Wisniewski, 2001).

The gap model of service or SERVQUAL instrument has become the most prominent instrument in attempting to operationalize service quality (van der Wal *et al.,* 2002; Wisniewski, 2001). Most researchers support the continued use of SERVQUAL to measure customer satisfaction, although they recommend that more work is needed to improve its measurement scales (Eastwood *et al.*, 2005; Wang *et al.* 2004; Landrum & Prybutok, 2004). Many previously developed measurement instruments have tended to focus exclusively on customer perceptions of service; i.e. measuring what the customer thinks of the present service delivery. SERVQUAL is seen as superior, because it also focuses on trying to understand adequately customers' expectations. However, understanding the latent expectations of customers is not an easy task, because often consumers either do not really know what they want, or do not tell directly what they want (Lim & Tang, 2000). This is all the more reason to deploy a valid instrument such as SERVQUAL to focus on capturing the functional aspects of quality management in the service sectors (Gupta *et al.,* 2005).

3. The Conceptual Framework

From the literature it can concluded that service quality is a multifaceted construct. There is no clear consensus in the literature on the number of features and their interrelationship, except that there are some fundamental concerns to be considered (Hill, 1995). These fundamental concerns include the centrality of the customer, the relationship between their expectations and perceptions of the services provided, and the importance customers assigned to the different attributes of the service (Hill, 1995)

The framework which proposes to explain "Educational Service Quality and Customer Satisfaction at Public Higher Educational Institutions" in the context of contemporary quality concerns is denoted by the following general expressions:

$$ESQ = f \text{ (AQUALD, NON-AQUALD)}$$

Where, ESQ = Educational Service Quality, AQUALD = Academic Quality Dimensions and NON-AQUALD = Non-Academic Quality Dimensions.

The general expression can be stated in the form of a regression equation as follows:

$$ESQ = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + \epsilon$$

Where X_1 = Reliability, X_2 = Tangibles, X_3 = Responsiveness, X_4 = Assurance, X_5 = Empathy, X_6 = Communication, X_7= Knowledge/ Expertise, X_8 = Systems/ Secondary services, X_9= Social Responsibility and X_{10} = Self-Development.

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 questions 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 schematic diagram showing the relationship between the quality dimensions and service quality and customer satisfaction is shown in Figure 2 below. The Service Quality and Customer Satisfaction Model as depicted in Figure 2 was adapted and modified from a combination of models as proposed by Zeithaml et al. (1990), Soutar & McNeil (1996), Sureshchandar et al. (2001), and Oliver (1993b).

4. The Research Instrument

In all sections of the questionnaire the Likert-type scale was extensively used, except in Sections 7 and 8. Sections 1 through 6 of the questionnaire contained instruments of items to measure the ten identified sub-dimensions or attributes under investigation, and those items intended to tap the importance of each sub-dimensions or attributes in determining service quality, expectation and perception of educational service quality based on the ten sub-dimension, as well as customer satisfaction with regard to the ten sub-dimensions. According to Miller (1991) the Likert-type scale is highly reliable because the score includes a measure of intensity as expressed on each statement. Two set of questionnaire were created: one in English and one in Bahasa Melayu. The Bahasa Melayu version was reverse-translated to ensure congruency across both versions (Brinslin *et al.,* 1973), and pilot tests were conducted for both languages. The paragraphs below outlined and described the pilot test process and followed by the construct measurement report. The purpose of the pilot test was to test the reliability and validity of the questionnaire and to anticipate any problems associated with the actual field study. A total of 517 respondents were involved in the study.

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 colleague from the Faculty of Business and Economics, Universiti Pendidikan Sultan Idris was selected to participate in the focus group discussion and was invited to give comments and opinion regarding the measure of the constructs.

The individual construct under investigation had the reliability coefficient scores as shown in table 1.

4.1 Importance of the sub-dimensions

The importance of each service quality attributes or dimensions in determining the level of service quality is displayed in table 2, 3, and 4 below.

Table 2 above displays the importance of the service quality dimensions from the perspective of post-graduate students at public higher educational institutions. The most important dimension is self-development, followed by tangibles and knowledge or expertise of the academic staff. The least important dimension is empathy and assurance.

Table 3 above displays the importance of the service quality dimensions from the perspective of post-graduate students at research universities. The most important dimension is self-development, followed by tangibles and knowledge or expertise of the academic staff. The least important dimension is empathy and assurance.

Table 4 above displays the importance of the service quality dimensions from the perspective of post-graduate students at non-research universities. The most important dimension is self-development, followed by tangibles and social responsibility. The least important dimension is empathy and assurance.

The related hypothesis developed to determine the importance of the educational service quality sub-dimensions is reproduced (stated in the null form) as follows:

H_1:   There is no significant difference in importance of the educational service quality sub-dimensions between research universities and non-research universities.

H_{1a}:   There is no significant difference in importance of the reliability sub-dimension between research universities and non-research universities.

H_{1b}:   There is no significant difference in importance of the tangibles sub-dimension between research universities and non-research universities.

H_{1c}:   There is no significant difference in importance of the responsiveness sub-dimension between research universities and non-research universities.

H_{1d}:   There is no significant difference in importance of the assurance sub-dimension between research universities and non-research universities.

H_{1e}:   There is no significant difference in importance of the empathy sub-dimension between research universities and non-research universities.

H_{1f}:   There is no significant difference in importance of the communication sub-dimension between research universities and non-research universities.

H_{1g}:   There is no significant difference in importance of the knowledge/expertise sub-dimension between research universities and non-research universities.

H_{1h}:   There is no significant difference in importance of the systems/secondary services sub-dimension between research universities and non-research universities.

H_{1i}:   There is no significant difference in importance of the social responsibility sub-dimension between research universities and non-research universities.

H_{1j}:   There is no significant difference in importance of the self-development sub-dimension between research universities and non-research universities.

The one-way between groups ANOVA with planned comparison was used to test these hypotheses. The critical F values for *F1,515,α.05* is 3.84. The result of the ANOVA analysis is shown in Table 5 below.

From the above analysis it can be concluded that there is no significant difference in importance of the educational service quality dimensions between research universities and non-research universities with regard to the mentioned sub-dimensions: Reliability, Responsiveness, Assurance, Communication, Knowledge/Expertise, Systems/ Secondary Services and Self-development.

5. Research Limitations

The following assumptions are implicit in this study:

- The students and other respondents were accurate and sincere in their responses.
- The procedures and methods of data collection and analyses were reasonably reliable and appropriate for gathering data and to seek answers for this study's research questions.
- The methods and procedures used were reasonable and appropriate in this type of study and sufficient to answer the research questions.
- It is assumed that the respondents were sufficiently fluent in English to respond appropriately. A Bahasa Malaysia version of the questionnaire was prepared and used where it was thought to be preferable.

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 & 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 (1990) 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 & Mehta, 2005). Social desirability bias (the respondents consciously or unconsciously intended to create a favorable 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.

6. Direction for Future Research and Recommendations

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.

- Educational managers need to allocate their resources based on the importance of various sub-dimensions.

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Figure 1: The Service Quality Model
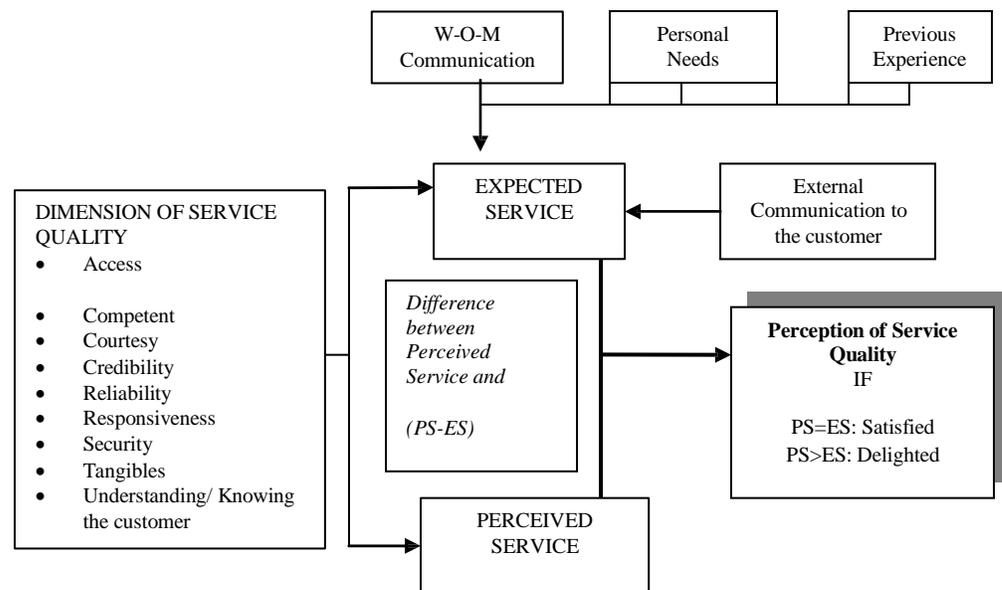
Source: Parasuraman, A., Zeithaml, V.A., & Berry, L.L.(1986). SERVQUAL: a multi-item scale for measuring customer perception of service quality. *Journal of Retailing,* Spring .12 – 40.

Figure 2: Educational Service Quality and Customer Satisfaction at Public Higher Educational Institutions
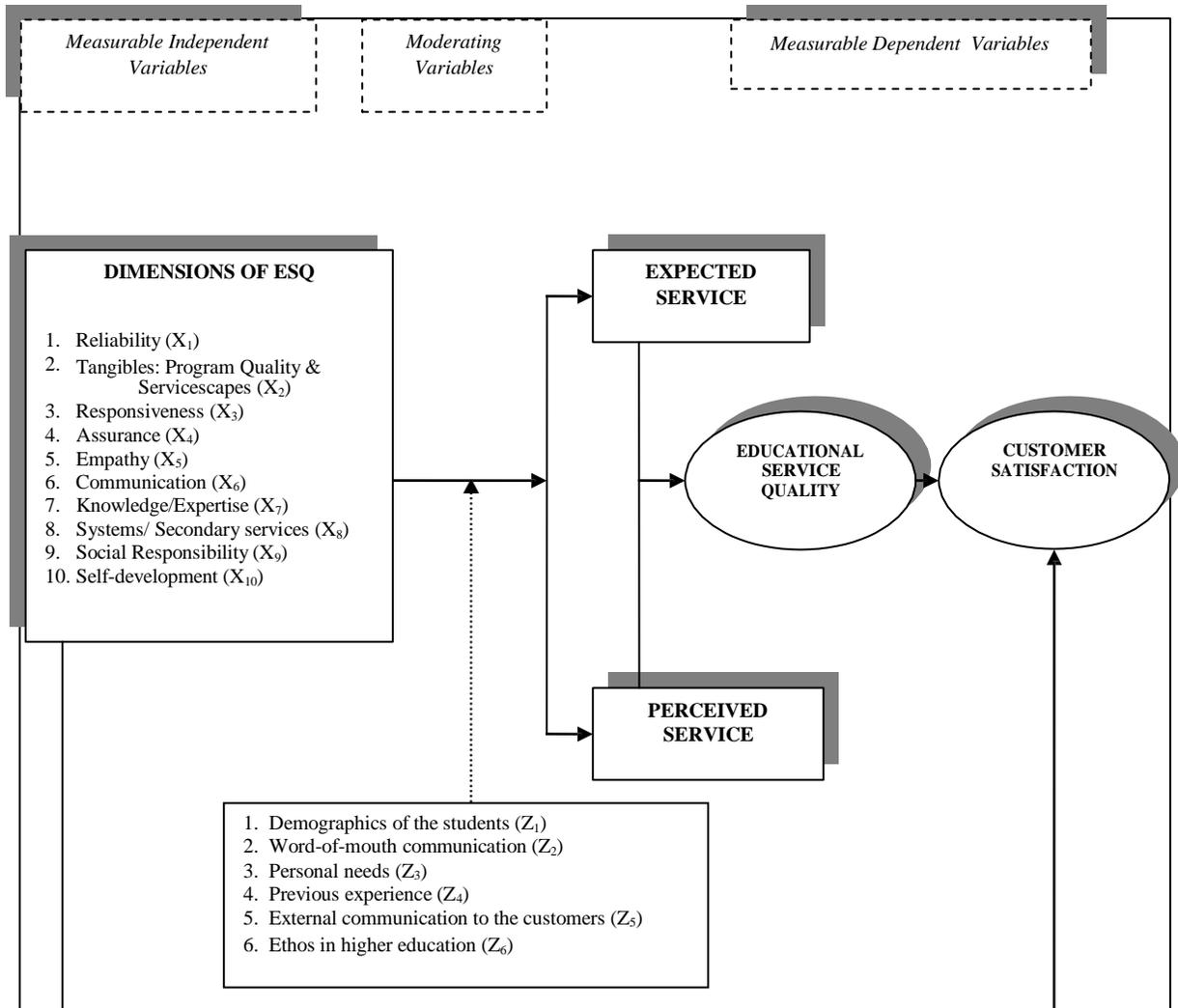
Table 1a: Cronbach's Alpha Reliability coefficient of the sub-dimensions

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

Table 1b: Cronbach's Alpha Reliability coefficient of the sub-dimensions

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

Table 2: Importance of the dimensions - Total Respondents

Dimension	N	Min	Max	Mean	SD	Mean – SD	Rank Order
Reliability	517	4	7	5.8723	0.8756	4.9967	6
Tangibles	517	4	7	6.2418	0.8500	5.3918	2
Responsiveness	517	4	7	6.0464	0.9348	5.1116	5
Assurance	517	4	7	5.7234	1.1609	4.5625	10
Empathy	517	3	7	5.7369	1.0232	4.7137	9
Communication	517	4	7	5.9091	0.9949	4.9142	7
Knowledge/Expertise	517	4	7	6.1277	0.8822	5.2455	3
Systems/Secondary Services	517	4	7	5.7776	0.8886	4.8890	8
Social Responsibility	517	4	7	6.1547	0.9146	5.2401	4
Self-development	517	5	7	6.2611	0.6436	5.6175	1

Calculating weighted importance for the service quality attributes at PHEIs

Service quality attributes	**Calculation**	**Weighted importance**
Reliability	5.8723 / 59.8510	0.0981
Tangibles	6.2418 / 59.8510	0.1043
Responsiveness	6.0464 / 59.8510	0.1010
Assurance	5.7234 / 59.8510	0.0956
Empathy	5.7369 / 59.8510	0.0959
Communication	5.9091 / 59.8510	0.0987
Knowledge/Expertise	6.1277 / 59.8510	0.1024
Systems/Secondary services	5.7776 / 59.8510	0.0965
Social responsibility	6.1547 / 59.8510	0.1028
Self-development	6.2611 / 59.8510	0.1046
TOTAL		0.9999

Table 3a: Importance of the dimensions at Research Universities

Dimension	N	Min	Max	Mean	SD	Mean – SD	Rank Order
Reliability	262	4	7	5.8893	0.8346	5.0547	6
Tangibles	262	5	7	6.3435	0.8001	5.5434	2
Responsiveness	262	4	7	6.0802	0.8998	5.1804	5
Assurance	262	4	7	5.7328	1.1863	4.5465	10
Empathy	262	3	7	5.8321	1.0145	4.8176	9

Communication	262	4	7	5.9427	0.9829	4.9598	7
Knowledge/Expertise	262	5	7	6.1870	0.8161	5.3709	3
Systems/Secondary Services	262	4	7	5.7481	0.8871	4.8610	8
Social Responsibility	262	4	7	6.2366	0.8913	5.3453	4
Self-development	262	5	7	6.3015	0.6348	5.6667	1

Table 3b: Calculating weighted importance for the service quality attributes at Research Universities

Service quality attributes	Calculation	Weighted importance
Reliability	5.8893 / 60.2938	0.0977
Tangibles	6.3435 / 60.2938	0.1052
Responsiveness	6.0802 / 60.2938	0.1008
Assurance	5.7328 / 60.2938	0.0951
Empathy	5.8321 / 60.2938	0.0967
Communication	5.9427 / 60.2938	0.0986
Knowledge/Expertise	6.1870 / 60.2938	0.1026
Systems/Secondary services	5.7481 / 60.2938	0.0953
Social responsibility	6.2366 / 60.2938	0.1034
Self-development	6.3015 / 60.2938	0.1045
TOTAL		0.9999

Table 4a: Importance of the dimensions at Non-Research Universities

Dimension	n	Min	Max	Mean	SD	Mean – SD	Rank Order
Reliability	255	4	7	5.8549	0.8346	5.0547	6
Tangibles	255	4	7	6.1373	0.8001	5.5434	2
Responsiveness	255	4	7	6.0118	0.8998	5.1804	5
Assurance	255	4	7	5.7137	1.1863	4.5465	10
Empathy	255	3	7	5.6392	1.0145	4.8176	9
Communication	255	4	7	5.8745	0.9829	4.9598	8
Knowledge/Expertise	255	4	7	6.0667	0.8161	5.3709	4
Systems/Secondary Services	255	4	7	5.8078	0.8871	4.8610	7
Social Responsibility	255	4	7	6.0706	0.8913	5.3453	3
Self-development	255	5	7	6.2196	0.6348	5.6667	1

Table 4b: Calculating weighted importance for the service quality attributes at Non-Research Universities

Service quality attributes	Calculation	Weighted importance
Reliability	5.8549 / 59.3961	0.0986
Tangibles	6.1373 / 59.3961	0.1033
Responsiveness	6.0118 / 59.3961	0.1012
Assurance	5.7137 / 59.3961	0.0962
Empathy	5.6392 / 59.3961	0.0949
Communication	5.8745 / 59.3961	0.0989
Knowledge/Expertise	6.0667 / 59.3961	0.1021
Systems/Secondary services	5.8078 / 59.3961	0.0978
Social responsibility	6.0706 / 59.3961	0.1022
Self-development	6.2196 / 59.3961	0.1047
TOTAL		0.9999

Table 5: One-way between groups ANOVA for importance with regard to the educational service quality sub-dimensions

ESQ sub-dimensions	Calculated F value	Significance	Accept/ Reject null hypothesis
Reliability	0.199	0.655	Accept
Tangibles/ Program quality	7.709	0.006	Reject
Responsiveness	0.691	0.406	Accept
Assurance	0.035	0.852	Accept
Empathy	4.623	0.032	Reject
Communication	0.607	0.436	Accept
Knowledge/Expertise	2.412	0.121	Accept
Systems/Secondary Services	0.548	0.445	Accept
Social responsibility	4.287	0.039	Reject
Self-development	2.098	0.148	Accept