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The Impact of Resource Input Model of Education Quality on the Overall Students' Perceived Service Quality

L'IMPACT DU MODÈLE D'ENTRÉE DE RESSOURCES DE LA QUALITÉ DE L'ÉDUCATION SUR LA QUALITÉ DE L'ENSEMBLE DES SERVICES PERÇUE PAR LES ÉTUDIANTS

Kwek Choon Ling (Corresponding author)¹

Tan Hoi Piew²

Lau Teck Chai³

Abstract: Students' retention and their academic performance are influenced by the service quality provided by higher education institutions (Sander, Stevenson, King and Coates, 2000). As such, it is vital to identify the determinants of the overall students' perceived service quality. The aim of this research is to evaluate and validate the determinants of the overall students' perceived service quality in a private higher education institution in Malaysia, based on the combination of both the 'inside-out' and 'outside-in' approaches as well as the resource input model of education quality. A total of 458 undergraduate business students from a private university in Malaysia participated in this research. The findings revealed that contact personnel, access to facilities, cost of courses offered, physical facilities of the tertiary institution and resource input model of education quality were positively related to the overall students' perceived service quality.

Keywords: service quality; education quality; perceived service quality

Résumé: La mémoire et la performance scolaire des étudiants sont influencées par la qualité des services fournis par les établissements d'enseignement supérieur (Sander,

¹ Faculty of Management and Information Technology, UCSI University, Jalan Menara Gading, UCSI Heights, 56000 Kuala Lumpur, Malaysia. E-mail: kwekcl@ucsi.edu.my

² Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman Lot PT21144, Jalan Sungai Long, Bandar Sungai Long, Cheras, 43000 Kajang, Selangor, Malaysia. E-mail: hptan@utar.edu.my

³ Faculty of Accountancy and Management, Universiti Tunku Abdul Rahman Lot PT21144, Jalan Sungai Long, Bandar Sungai Long, Cheras, 43000 Kajang, Selangor, Malaysia. E-mail: lautc@utar.edu.my

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Stevenson, King and Coates, 2000). Il est donc important d'identifier les déterminants de la qualité de l'ensemble des services perçue par les étudiants. Le objectif de cette recherche est d'évaluer et de valider les déterminants de la qualité de l'ensemble des services perçue par les étudiants dans un établissement d'enseignement supérieur privé en Malaisie. Cette recherche est basée sur la combinaison de deux approches "inside-out" et "outside-in", ainsi que le modèle d'entrée de ressources de la qualité de l'éducation. Un total de 458 étudiants de premier cycle d'une université privée en Malaisie ont participé à cette recherche. Les résultats ont révélé que le personnel de contact, l'accès aux installations, le coût des cours offerts, les installations physiques de l'établissement d'enseignement supérieur et le modèle d'entrées de ressources de la qualité de l'éducation sont positivement liés à la qualité de l'ensemble des services perçue par les étudiants.

Mots-clés: qualité de service; qualité de l'éducation; qualité de service perçue

1. INTRODUCTION

Service quality has become an important area in services marketing literature due to its effect on cost, profitability, customer satisfaction, and customer retention (Buzzell & Gale, cited in Buttle, 1996; Bolton & Drew, 1991; Reichheld & Sasser, 1990). Intensive competition in the higher education sector (Ford, Joseph and Joseph, 1999), internationalization of higher education (Marzo-Navarro, Pedraja-Iglesias and Rivera-Torres, 2005), higher expectation towards higher education institutions (Marzo-Navarro, et. al., 2005), increase of full fee payment students (Oldfield and Baron, 2000), and the classification of education as a marketable service (Cuthbert, 1996; Mazarrol, 1998) prompted the management of the various higher education institutions to pay more attention in assessing the overall students' perceived service quality. The ability to meet customer-perceived service quality will affect the sustainability of an organization (Canic and McCarthy, 2000). Due to the important role that students' perceived service quality has in determining the sustainability of private higher education institutions in Malaysia, there is a need to identify what are the determinants for the overall students' perceived service quality.

In Malaysia, higher education institutions comprise of both public and private higher education providers. Eighteen publicly funded higher education institutions have been set up by the government to provide tertiary education opportunities to the nation (Ministry of Higher Education, 2006). In the privately-funded higher educational sector, a total of 22 private universities and university colleges, 4 foreign university branch campuses and 532 private colleges competed aggressively to enroll 341,310 Malaysian and foreign students in their various programs in 2005 (Education Guide Malaysia, 2006).

Owing to the Asian Financial Crisis in 1997 and the need to curb the outflow of Malaysian currency abroad, the Malaysian government liberalized the higher education policies by allowing the completion of overseas undergraduate degrees in Malaysia. As a result, various overseas undergraduate degree programs (such as '3+0' British Degree Program, '3+0' Australia Degree Program, and '4+0' American Degree Program) were offered and students were awarded foreign degree by the respective university once they complete the academic requirements of these foreign degrees in Malaysia. The emergence of a strong market demand and the proliferation of local completion degree programs in Malaysia have drawn the management's attention from these private higher education institutions to explore and evaluate the determinants of the overall students' service quality based on different education quality models.

The aim of this research therefore is to evaluate and validate the determinants of the overall students' perceived service quality for a private higher education institution in Malaysia. This will be based on the combination of both the 'inside-out' and 'outside-in' approaches as well as the resource input model of

education quality.

2. LITERATURE REVIEW

2.1 Quality

There is no conclusive definition of quality because the word “quality” is attached to different meanings and connotations (Pfeffer and Cootle, cited in Sahney, Banwet and Karunes, 2004). However, quality is defined by Juran and Godfrey (2000, p.2.1 & 2.2) as: (1) “those features of products which meet customer needs and thereby provide customer satisfaction”; and (2) “freedom from deficiencies – freedom from errors that require doing work over again (rework) or that result in field failures, customer dissatisfaction, customer claims and so on”.

The concept of quality is not well defined in higher education (Cheng and Tam, 1997; Pounder, 1999). According to Mukhopadhyay (cited in Sahney, et. al., 2004, p.149), the term ‘quality in education’ has been defined by various scholars, such as “excellence in education” (Peters and Waterman, 1982), “value addition in education” (Feigenbaum, 1951), “fitness of educational outcome and experience for use” (Juran and Gryna, 1988), “specifications and requirements” (Gilmore, 1974; Crosby, 1979), “defect avoidance in education process” (Crosby, 1979) and “meeting or exceeding customer’s expectations of education” (Parasuraman, Zeithaml and Berry, 1985). Therefore, a single definition of education quality is not possible; but rather, it would be more appropriate to define education quality based on the criteria that stakeholders used to judge quality, and also to consider the competing views when assessing the education quality (Green, cited in Sahney, et. al., 2004). The following section discusses the idea of education quality and the different models of education quality.

2.2 Education Quality

Cheng (cited in Cheng and Tam, 1997, p.23) defines education quality as “the character of the set of elements in the input, process, and output of the education system that provides services that completely satisfy both internal and external strategic constituencies by meeting their explicit and implicit expectations”. The seven models of education quality proposed by Cheng and Tam (1997) to evaluate the concept of education quality are: (1) goal and specification model; (2) resource-input model; (3) process model; (4) satisfaction model; (5) legitimacy model; (6) absence of problems model; and (7) organizational learning model. Each of the quality models has its own unique characteristics, strengths and limitations that describe the aspects of the education quality in its own ways and yet interlinked with one another (Tam and Cheng, 1996). These models allow the administrators of tertiary institutions to assess their own education quality (Tam and Cheng, 1996). Table 1 illustrates the different types of model in the education quality.

Only one out of the seven models of education quality proposed by Cheng and Tam (1997) will be adopted in this research because the tertiary institution may be unable to achieve total education quality by adopting all the seven models at the same time due to the constrain in resources and capabilities (Tam and Cheng, 1996). The selected model of education quality adopted in this research is the resource-input model.

The resource-input model of education quality stresses the importance of obtaining scarce and quality resource inputs to the education institutions to fulfill various objectives and to provide quality services in a short period of time. It assumes that the quality of education depends on the quality of resource input (Tam and Cheng, 1996; Cheng, 2003). The education quality indicators for the resource-input model, according to Cheng (2003), may include high quality student intake, more qualified staff recruited, better facilities and equipment, better staff-students ratio, and more financial support. Education quality indicators identified in this research are: (1) contact personnel; (2) physical facilities of the tertiary institution; (3) access to facilities; and (4) cost of courses offered. These four indicators will be tested as

independent variables for the overall students' perceived service quality, under the grouping of resource-input model of education quality.

Although Tam and Cheng (1996) argue that resource-input model of education quality can be adopted by the administrators of tertiary institutions to evaluate perceived service quality, there is a lack of empirical testing in the existing literature to support this contention. This has created a gap in the literature and will be further explored in the current research.

2.3 Service Quality and Perceived Service Quality

There are eight dimensions of quality that comprises of performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality (Garvin, 1987). The perceived service quality fully explains the quality dimension in services industry (Reeves and Bednar, 1994) and this is further supported by Kang and James (2004) who assert that perceived service quality is the core issue of service quality in the services marketing literature.

Service quality is defined as "the difference between customers' expectations for service performance prior to the service encounter and their perceptions of the service perceived" (Asubonteng, McCleary and Swan, 1996, p.64) while the perceived service quality is defined as "a global judgment, or attitude, relating to the superiority of the service" (Parasuraman, Zeithaml and Berry, 1988, p.16). The core concept of service quality is the disconfirmation of expectations theory (Dawes and Rowley, 1999). According to the disconfirmation of expectations theory, the comparison of the expectations and perceptions of services will generate the decision of disconfirmation (Ruyter, Bloemer and Peeters, 1997) and subsequently this disconfirmation affects the perceived service quality (Gotlieb, Grewal and Brown, 1994; Philip and Hazlett, 1997). Customers form positive disconfirmation when the performance of the services offered by the service provider exceeds their prior expectations whereas, customers will form negative disconfirmation when prior expectations exceed the performances of the services offered by the service providers (Ruyter, et. al., 1997). Negative disconfirmation of expectations will create negative impact to the perceived quality of the services offered (Gotlieb, et. al., 1994). This relationship is supported both theoretically (Fishbein and Ajzen, cited in Gotlieb, et. al., 1994) and empirically (Brown and Sawartz, Parasuraman, et. al., both cited in Gotlieb, et. al., 1994).

There are 19 different service quality models available in the present literature (Seth, Deshmukh and Vrat, 2005). These models include: (1) Technical and functional quality model (Gronroos, 1984); (2) Service Quality Gap model (Parasuraman, et. al., 1985); (3) Attribute service quality model (Haywood-Farmer, 1988); (4) Synthesised model of service quality (Brogowicz, Delene and Lyth, 1990); (5) Performance only model (Cronin and Taylor, 1992); (6) Ideal value model of service quality (Mattsson, 1992); (7) Evaluated performance and normed quality model (Teas, 1993); (8) IT alignment model (Berkley and Gupta, 1994); (9) Attribute and overall affect model (Dabholkar, 1996); (10) Model of perceived service quality and satisfaction (Spreng and Mackoy, 1996); (11) PCP attribute model (Philip and Hazlett, 1997); (12) Retail service quality and perceived value model (Sweeney, Soutar and Johnson, 1997); (13) Service quality, customer value and customer satisfaction model (Oh, 1999); (14) Antecedents and mediator model (Dabholkar, Shepherd and Thorpe, 2000); (15) Internal service quality model (Frost and Kumar, 2000); (16) Internal service quality DEA model (Soteriou and Stavrinides, 2000); (17) Internet banking model (Broderick and Vachirapornpuk, 2002); (18) IT-based model (Zhu, Wymer and Chen, 2002), and (19) Model of e-service quality (Santos, 2003).

Among the various service quality models, the Technical and Functional Quality Model (Gronroos, 1984) and the Service Quality Gap Model, also known as SERVQUAL model (Parasuraman, et. al., 1985) are the two most commonly quoted service quality models. There are five key dimensions of the SERVQUAL model which can be used by consumers to evaluate perception of the overall perceived service quality. These dimensions include reliability, assurance, tangibles, responsiveness and empathy (Parasuraman, et. al., 1988).

The SERVQUAL model is frequently used and adopted in the extant literature to evaluate the overall students' perceived service quality in the education industry (Russell, 2005). The SERVQUAL model

that is developed by Parasuraman, et. al. (1985) is adapted in this research to measure “the gap between customers’ expected level of service and their perceptions of the actual service perceived” (Bennett, et. al., 2003, p.84). However, there is no consensus in the existing literature pertaining to the development and definition of the determinants of the overall students’ perceived service quality in higher education. The different determinants that have been adapted from the five dimensions of the SERVQUAL model in evaluating the determinants of the overall students’ perceived service quality for higher education institutions are illustrated in Table 2.

In combining the studies of various determinants of the overall students’ perceived service quality that have been identified in Table 2 and the adoption of resource-input model of education quality, four independent variables for the overall students’ perceived service quality have been developed in this research: (1) contact personnel; (2) physical facilities of the tertiary institution; (3) access to facilities; and (4) cost of courses offered. All the four independent variables are adopted from Sohail and Shaikh (2004), Joseph, Yakhou and Stone (2005) and Kennington, Hill and Rakowska (1996).

2.3.1 Contact Personnel

The quality of services is reflected in the task that is carried out by the respective service providers through their interaction with the client in the process of delivering such services (Heskett, 1987; Surprenant and Solomon, 1987). This argument is supported by Bitner, Booms and Tetreault (1990). The human interaction component will affect the customer’s evaluation process in evaluating the perceived service quality (Bitner, et. al. 1990). One of the human interaction components in this research includes the contact personnel (Sohail and Shaikh, 2004) and will be tested in this research as one of the independent variables for the overall students’ perceived service quality.

The contact personnel based on the research of Sohail and Shaikh (2004) includes courtesy, politeness and respect shown by the faculty administrators; courtesy, politeness and respect shown by the lecturers; neatness and cleanliness of the lecturers; competencies of the faculty administrators to perform their duties properly; and finally neatness and cleanliness of the faculty administrators.

2.3.2 Physical Facilities of the Tertiary Institution

Bitner (1990, 1992) asserts that the physical facilities are able to indicate the capabilities and the quality offered by the service based company. The physical facilities of the tertiary institution to a certain extent do influence the overall students’ perceived service quality because students will associate various tangible elements with the services provided by the higher education institution (Russell, 2005; Oldfield and Baron, 2000). Students who spend hours every day in a school are likely to have attitudes toward the school system that are strongly influenced by the physical facilities (Wakefield and Blodgett, 1994, p.68).

The physical facilities of the tertiary institution have been tested by many researchers in the existing literature as one of the important determinants of the overall students’ perceived service quality (LeBlanc and Nguyen, 1997; Ford, et. al., 1999; Sohail and Shaikh, 2004; Joseph, et. al., 2005). Therefore, the physical facilities of the tertiary institution will be tested in this research as one of the independent variables. The physical facilities of the tertiary institution based on the research of Sohail and Shaikh (2004) include the layout of the classrooms, the lighting in the classrooms, the appearance of the campus buildings and ground, the comfort of the classrooms and study rooms, and finally the neatness and cleanliness of the campus.

2.2.3 Access to Facilities

According to LeBlanc and Nguyen (1997) and Sohail and Shaik (2004), the abilities of students to access the facilities offered by tertiary institution will affect the overall students’ perceived service quality for a

particular tertiary institution. Therefore, the access to facilities will be tested in this research as one of the independent variables for the overall students' perceived service quality. Access to facilities (Sohail and Shaik, 2004) includes the convenience of access to the parking facility, computer facility and study room facility.

2.3.4 Cost of Courses Offered

According to the research carried out by Ford, et. al. (1999), reasonable cost of education influences the overall students' perceived service quality. In addition, the provision of financial services such as scholarship is indicated as one of the important determinants of the overall students' perceived service quality (Hill, 1995). The cost of courses offered has been tested by some researchers in the extant literature as one of the important determinants of the overall students perceived service quality (Hill, 1995; Ford, et. al., 1999; and Joseph, et. al., 2005). The items in the cost of courses offered are adapted from Joseph, et. al. (2005) and Kennington, et. al. (1996). The items include a variety of scholarships offered to students, whether the cost of the academic program is reasonable and finally whether the miscellaneous service charges are reasonable.

2.4 “Outside-in” Approach and “Inside-out” Approach

In the extant literature, there are two approaches adopted by researchers in setting the determinants of the overall students' perceived service quality in higher education. Service quality standards can be evaluated based on the perspective of the customers ('outside-in' approach) or the perspective of the service providers ('inside-out' approach) (Hoffman and Bateson, 2006). The 'inside-out' approach is where the university's academicians and administrators will set the determinants of the overall students' perceived service quality. They assume that they know the students' needs as well as the lecturers' contribution (Sander, et. al., 2000, p.309). LeBlanc and Nguyen (1997), Nagata, Satoh, Gerrard and Kytomaki (2004) and Sohail and Shaikh (2004) are some of the proponents who prefer to adopt the 'inside-out' approach in evaluating the overall students' perceived service quality in higher education. However, 'inside-out' approach may lead to poor performance in service quality because feedbacks from the students were not taken into consideration (Joseph, et. al., 2005). Joseph, et. al. (2005, p.67) assert that “if firms do not know what their own customers desire in terms of service, then how can they possibly design programs that match customer expectations of what constitute good service”. Therefore, Joseph, et. al. (2005) proposed that researchers adopt the 'outside-in' approach in evaluating the overall students' perceived service quality in higher education. According to Joseph, et. al. (2005), the 'outside-in' approach of the overall students' perceived service quality was determined based on the feedback from students and outside consultants. Researchers who adopted the 'outside-in' approach would “research what customers expect of the service and they then work to provide the service that meets those customer expectations” (Zeithaml, Parasuraman and Berry, cited in Sander, et. al., 2000, p.309). A combination of determinants of the overall students' perceived service quality from both the 'inside-out' and 'outside-in' approaches provide a more complete picture for the administrators of the higher education institutions to understand the overall students' perceived service quality based on the opinions and feedback from both the academicians and students. Three determinants such as 'contact personnel, physical facilities of the tertiary institution, and access to facilities' implemented 'inside-out' approach to evaluate students' perceived service quality (Sohail and Shaikh, 2004); whereas determinant such as 'cost of courses offered' adopted the 'outside-in' approach to evaluate students' perceived service quality (Joseph, et al., 2005; Kennington, et. al., 1996). Consequently, the objective of this research is to evaluate and validate the four determinants of the overall students' perceived service quality in Malaysia private higher education based on the combination of the two approaches as well as resource-input model of education quality.

2.5 Hypotheses

Prior discussion has led to a brief examination of the existing literature and the resultant research gaps

led to the development of the hypotheses in this research. The five hypotheses are:

Education Quality Model (Resource-input):

H1: There is a positive relationship between the resource-input model of education quality and the overall students' perceived service quality.

Resource-input ('inside-out' approach):

H2: The contact personnel is positively related to the overall students' perceived service quality.

H3: There is a positive relationship between the physical facilities of the tertiary institution and the overall students' perceived service quality.

H4: Access to facilities is positively related to the overall students' perceived service quality.

Resource-input ('outside-in' approach):

H5: There is a positive relationship between the cost of courses offered and the overall students' perceived service quality.

3. RESEARCH METHOD

3.1 Research Design

Positivism approach was adopted in this research because this approach: (1) allowed the researcher to search for truths of the observation by empirical evidence via the hypothetico-deductive method; and (2) many researches and observations on the students' perceived service quality had been conducted and the extant literature was well developed (Jankowicz, 2005). Furthermore, descriptive research design was adopted as the study has clear problem statements, specific hypotheses and detailed body of knowledge (Malhotra, 2004).

3.2 Questionnaire Design

The first part of the questionnaire provides general information as to who are eligible to take part in this survey. The second part of the questionnaire elaborates the independent variables and dependent variable that would be tested in the survey. The third part of the questionnaire identifies the personal information of the respondents. Questions in the form of scaled-response questions were adopted in the second part of the questionnaire because "scaling permits measurement of the intensity of respondents' answers" (Churchill and Brown, 2004, p.329). The items of the questionnaire in this research were adopted from different sources of the existing literature. The items for the independent variables "contact personnel", "physical facilities of the tertiary institution" and "access to facilities" were adopted from Sohail and Shaik (2004). The items for independent variable "cost of courses" were adapted from Joseph, et. al. (2005) and Kennington, et. al. (1996). Lastly, the items for dependent variable "overall students' perceived service quality" were adopted from Lee, Lee and Yoo (2000). A 7-point Likert scale anchored by "much less than expected" (1) to "much better than expected" (7) was used as the attitude measurement for independent variables (Sohail and Shaikh, 2004). Three types of 7-point Likert scale anchored by "very low" (1) to "very high" (7), "poor" (1) to "excellent" (7), and "unlikable" (1) to "likable" (7) were used as the attitude measurement for dependent variable (Lee, et. al, 2000).

3.3 Sampling

The target population covered all the undergraduate students enrolled in University 'A' and the sampling unit included all the current full-time undergraduate business students in University 'A'. The university is one of the largest private universities in Malaysia; with an estimated student population of 18,000

pursuing 84 programs in nine faculties spread over four campuses. Students who had completed at least one semester in the faculty campus of University 'A' was targeted because they were familiar with the faculty and services provided as compared to those newly enrolled students. The targeted sample size was 500 and convenience sampling technique was used to select potential respondents in this survey.

3.4 Administration of Survey

Self-administered survey method in the form of drop-off surveys technique was used to ensure the confidentiality and non-obligation aspects of participating in the survey. The survey was conducted in the lecture hall where respondents could return the questionnaires immediately into the box allocated. The voluntary nature of the participation was explained verbally as well as being indicated in the survey questionnaire. Students were invited to complete an anonymous survey questionnaire that took approximately 15 minutes of their time to complete.

A total of 500 sets of questionnaires were distributed and 479 questionnaires were collected. Out of that, 21 sets of questionnaires were considered unusable because they were incomplete. It was assumed that the respondents were either unwilling to cooperate or not serious with the survey. Therefore, subsequently only 458 usable questionnaires (91.6 percent) were used for data analysis using SPSS software version 14.

4. RESEARCH RESULTS

4.1 Respondents' Demographic Profile

Based on the survey, male respondents represented 32.5 percent of the total respondents while female respondents 67.5 percent. This is a normal phenomenon because the majority of the tertiary students in Malaysia are female. In the case of age distribution, the majority of the respondents were between the ages of 20 to 22 (83.2 percent). In terms of ethnic compositions, the students were mainly Chinese (84.5 percent), followed by Malay (10 percent), Indian (4.6 percent) and other races (0.7 percent). In the categories of current years of study, the distribution of the respondents was fairly spread. The categories of the current years of study consist of 30 percent enrolled in year one, 40 percent enrolled in year two and 30 percent enrolled in year three. From the response it was also noted that 73.4 percent of the students did receive some forms of financial aid and only 26.6 percent did not receive any forms of financial aid to fund their studies. It is important for tertiary students to secure sufficient financial aid for their higher education because "acquiring a Diploma or Bachelor's degree qualification can be rather costly particularly when it is projected to increase at a compounded rate of 5% - 10% per year" (Education Guide Malaysia, 2006, p.364).

4.2 Reliability Test

The reliability of a measure indicates the stability and consistency with which the instrument measures the concept and helps to assess the 'goodness' of a measure (Cavana, Delahaye and Sekaran, 2001). All the constructs were tested for the consistency reliability of the items within the constructs by using the Cronbach Alpha reliability analysis. In Table 3, the results indicated that the Cronbach alpha for all the five constructs were well above 0.7 as recommended by Cavana, et. al. (2001). Cronbach alpha for the constructs ranged from the lowest of 0.736 (physical facilities of the tertiary institution) to 0.890 (overall students' perceived service quality). In conclusion, the results showed that the scores of the Cronbach alpha for all the constructs used in this research exceeded the preferable scores of 0.70 and this indicated that the measurement scales of the constructs were stable and consistent.

4.3 Validity Test

Construct validity was adopted as validity measurement and factor analysis was used to measure the construct validity (Cavana, et. al., 2001). The details of the factor analysis were presented in Table 3. Based on the output shown, factor analysis was appropriate because the value of Kaiser-Meyer-Olkin (KMO) was 0.869 (between 0.5 and 1.0) and the statistical test for Bartlett test of sphericity was significant ($p = 0.000$; d.f. = 190) for all the correlations within a correlation matrix (at least for some of the constructs). Based on the principal components analysis and VARIMAX procedure in orthogonal rotation, the results also showed that the Eigenvalues for all the constructs were greater than 1.0, ranging from the lowest 1.295 (access to facilities) to the highest of 6.754 (contact personnel). In terms of convergent validity, the factor loadings for all items within a construct were more than 0.50. Discriminant validity indicated that all items were allocated according to the different constructs. Therefore, the items were not overlapping and they supported the respective constructs.

4.4 Regression Analyses

4.4.1 Simple Regression Analysis

A simple regression analysis was conducted to test the first hypothesis. The result is presented in Table 4. The composite reliability for resource input model of education quality is 0.647. Thus, the internal consistency reliability of the measures (that is the adoption of contact personnel, cost of courses offered, physical facilities of the tertiary institutions and access to facilities to measure resource input model of education quality) in this study can be considered moderate (Hair, Babin, Money, and Samouel, 2003). The p value of the t -test ($p = 0.000$) is less than the alpha value of 0.05. Therefore, the research study concludes that the resource input model of education quality is positively related to the overall students' perceived service quality. Hypothesis 1 is supported. Due to the current lack of empirical testing in the existing literature that explain the relationship between the resource-input model of education quality and the overall students' perceived service quality, the research finding has therefore contributed and advanced the existing literature on educational service quality.

Based on the SPSS output, the following simple regression equation was formed:

A. Overall Students' Perceived Service Quality = $3.06 + 0.154$ (Resource Input Model of Education Quality)

The above simple regression equation indicates that the resource-input model of education quality is the antecedent of the overall students' perceived service quality. The regression analysis also shows that the change in the overall students' perceived service quality is explained by 33 percent of the resource input of education quality (r square = 0.330).

4.4.2 Multiple Regression Analysis

The result of the multiple regression analysis is presented in Table 5. The p value of the contact personnel ($p = 0.000$) is less than the alpha value of 0.05. Therefore, the research concludes that a contact personnel is positively related to the overall students' perceived service quality. Hypothesis 2 is supported. This finding upholds the existing literature which states that the interaction between the contact personnel (academicians and faculty administrators) and the students will affect the overall students' perceived service quality towards the higher education institution (LeBlanc and Nguyen, 1997; Sohail and Shaikh, 2004).

The p value for the access to physical facilities ($p = 0.013$) is also less than the alpha value of 0.05. Therefore, it can be suggested that physical facilities of the tertiary institution is positively related to the overall students' perceived service quality. Hypothesis 3 is therefore supported. This finding supports the existing literature that physical facilities of the tertiary institutions to a certain extent do influence the

overall students' perceived service quality because students will associate various tangible elements with the services (Russell, 2005; Oldfield and Baron, 2000; LeBlanc and Nguyen, 1997; Ford, et. al., 1999; Sohail and Shaikh, 2004; Joseph, et. al., 2005).

The result from the research also postulated that the access to facilities is positively related to the overall students' perceived service quality, as the alpha value is less than 0.05. Hypothesis 4 is therefore supported. According to LeBlanc and Nguyen (1997) and Sohail and Shaik (2004), the ability to access facilities offered by the tertiary institution will affect students' perceived service quality for a particular tertiary institution because students are required to access certain facilities offered by the tertiary institution in order to complete their assignments.

Finally Hypothesis 5 is also supported. The p value of the cost of courses offered ($p = 0.000$) is less than the alpha value of 0.05. Therefore the conclusion is that the cost of courses offered is positively related to the overall students' perceived service quality. This research finding also supports the extant literature in which the cost of courses offered will affect the overall students perceived service quality (Hill, 1995; Ford, et. al., 1999; and Joseph, et. al., 2005).

Based on the SPSS output, the following multiple regression equation was formed:

Overall Students' Perceived Service Quality = 3.03 + 0.201 (Contact Personnel) + 0.231 (Cost of Courses Offered) + 0.150 (Access to Facilities) + 0.068 (Physical Facilities of the Tertiary Institution)

The values of the un-standardized Beta coefficient among the independent variables ranges from the weakest relationship of 0.068 (physical facilities of the tertiary institution) to the strongest relationship of 0.231 (cost of courses offered). Therefore "cost of courses offered" is the most important antecedent in affecting the overall students' perceived service quality. "Contact personnel" (0.201) and "access to facilities" (0.150) are ranked as the second and third most important antecedents affecting the overall students' perceived service quality. In addition, the overall students' perceived service quality is explained 35 percent by the combination of various independent variables ($r^2 = 0.350$), which includes contact personnel, access to facilities, cost of courses offered and physical facilities of the tertiary institution.

5. CONCLUSION

5.1 Implications of Research Findings

There are two theoretical implications in this research. Based on the existing literature, most of the researchers either use the 'inside-out' or 'outside-in' approach to evaluate the overall students' perceived service quality. It is discovered from this research that the formation of determinants based on the combination of both the 'inside-out' and 'outside-in' approaches could be used concurrently by researchers to evaluate the overall students' perceived service quality. In addition, the study offers empirical testing to support the antecedent relationship between resource input model of education quality and the overall students' perceived service quality. The findings contributed and advanced the existing literature on higher education service quality.

In term of managerial implication, the findings do provide some insights and feedback for the administrators of higher education institutions in drafting various managerial strategies on how to increase the level of overall students' perceived service quality and satisfaction. Administrators should adopt an integrated approach (by combining the 'inside-out and 'outside-in' approaches) to develop determinants in the process of evaluating the overall students' perceived service quality. In addition, administrators should not isolate the models of education quality and the overall students' perceived service quality for management decision-making. Based on the research findings, resource input model of education quality is positively related to the overall students' perceived service quality. University administrators are advised to implement various strategies to supplement and enhance the resource input of education quality into the institutions as part of the efforts to improve the overall students' perceived service quality.

5.2 Limitations of Research

Although the research findings provide some new insights to researchers, these findings should be viewed in light of some limitations. The study is based on cross-sectional data that is only able to reveal the net effect of predictor variable towards a particular criterion variable at a specific point in time (Cavana, et. al., 2001). Due to the inherent limitation of cross-sectional study, the research findings are not able to “explain why the observed patterns are there” (Easterby-Smith, Thorpe and Lowe, 2003, p.p.45). In other words, this research is not able to describe satisfactorily the observed changes in pattern and the causality of the overall students’ perceived service quality. In addition, the restriction of the boundary set in selecting the undergraduate business students in University ‘A’ as samples means that the findings cannot be generalized across all private higher education institutions in the country.

5.3 Recommendations for Further Research

Due to the limitations of this research, two recommendations are suggested for the purpose of enhancing the study of the overall students’ perceived service quality. Perception of service quality is the individual psychological judgment of the differences between performance and customer’s expectation because perceived service quality is defined as “a global judgment, or attitude, relating to the superiority of the service” (Parasuraman, et. al., 1988, p.16). Psychological judgment will change over time. Therefore, cross-sectional study may not be able to capture the observed changes in patterns and the causality of the overall students’ perceived service quality (Easterby-Smith, et. al., 2003). Longitudinal study is recommended in the future research in order to help researchers identify the cause and effect relationships among the various constructs (Cavana, et. al., 2001). Besides, it is also suggested to broaden the research setting by incorporating more private higher education institutions and drawing more respondents who are enrolled in various undergraduate degree programs. This may enhance the validity and generalization of the research finding.

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TABLES

Table 1: Models of Education Quality

Models	Conception of Education Quality	Conditions for Model Usefulness	Indicators / Key Areas for Quality Evaluation (with examples)
Goal and specification model	Achievement of stated institutional goals in conformance to the given specifications.	When institutional goals and specifications are clear, consensual, time-bound, and measurable. When resources are sufficient to achieve the goals and conform to the specifications.	Institutional objectives, standards, and specifications listed in the program plans, e.g. academic achievements, attendance rate, dropout rate, etc.
Resource-input model	Achievement of needed quality resources and inputs for the institution.	When there is a clear relationship between inputs and outputs. When quality resources for the institution are scarce.	Resources produced for institutional functioning, e.g. quality of student intake, facilities, financial support, etc.
Process model	Smooth internal process and fruitful learning experiences.	When there is a clear relationship between process and educational outcomes.	Leadership, participation, social interactions, classroom climate, learning activities and experiences, etc.
Satisfaction model	Satisfaction of all powerful constituencies.	When the demands of the constituencies are compatible and cannot be ignored.	Satisfaction of education authorities, management board, administrators, teachers, parents, students, etc.

To be continue...

Continued

Models	Conception of Education Quality	Conditions for Model Usefulness	Indicators / Key Areas for Quality Evaluation (with examples)
Legitimacy model	Achievement of the institution's legitimate.	When the survival and demise among education institutions must be assessed. When the environment is very competitive and demanding.	Public relations, marketing, public image, reputation, status in the community, evidence of accountability, etc.
Absence of problems model	Absence of problems and troubles in the institution.	When there is no consensual criterion of quality but strategies for improvement are needed.	Absence of conflicts, dysfunctions, difficulties, defects, weaknesses, troubles, etc.
Organizational learning model	Adaptation to environmental changes and internal barriers. Continuous improvement.	When institutions are new or changing. When the environmental change cannot be ignored.	Awareness of external needs and changes, internal process monitoring, program evaluation, development planning, staff development, etc.

Table 2: Determinants of the Overall Students' Perceived Service Quality in Higher Education from Selected Articles

Author(s)	Country	Determinants of Perceived Service Quality	Sample Frame	Approach
Hill (1995)	UK	<i>Managing Service Quality in Higher Education: the Role of the Student as Primary Consumer:-</i> Teaching, Student Involvement in Curriculum; Joint Consultation; Work Expertise (Placements); Computing Facilities; Library Service; University Bookshop; Careers Service; Counselling/Welfare; Financial Service; Health Service; Accommodation Service; Students' Union; Catering Service; Physical Education; Travel Agency.	62 students	'Inside-out' approach
Soutar and McNeil (1996)	Australia	<i>Measuring Service Quality in a Tertiary Institution:-</i> Academic and Non-Academic Variables; Reliability; Tangibles; Responsiveness; Assurance; Empathy; Knowledge; Communication.	109 students	'Inside-out' approach
Cuthbert (1996)	UK	<i>Managing Service Quality in HE: is SERVQUAL the answer? Part 1:-</i> Tangibles; Reliability; Responsiveness; Assurance; Empathy.	134 responses comprising 64 from level two and 70 from level three.	'Inside-out' approach

To be continue...

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Author(s)	Country	Determinants of Perceived Service Quality	Sample Frame	Approach
Pariseau and McDaniel (1997)	USA	Assessing Service Quality in Schools of Business:- Assurance; Tangibles; Reliability; Empathy; Responsiveness.	498 student responses and 43 faculty responses	'Inside-out' approach
Athiyaman (1997)	Australia	Linking Student Satisfaction and Service Quality Perceptions: the case of University Education:- Teaching Capability; Staff Availability; Library Service; Computing Facilities; Class Sizes; Subject Content; Student Workload; Recreational Facilities.	497 students	'Inside-out' approach
LeBlanc and Nguyen (1997)	Canada	Searching for Excellence in Business Education: an Exploratory Study of Customer Impressions of Service Quality:- Contact personnel: faculty; reputation; physical evidence; contact personnel: administration; curriculum; responsiveness; access to facilities.	388 students	'Inside-out' approach
Ford, et. al. (1999)	US and New Zealand	Importance-Performance Analysis as a Strategic Tool for Service Marketers: the Case of Service Quality Perceptions of Business Students in New Zealand and the USA:- Programme Issues; Academic Reputation; Physical Aspects/Cost; Career Opportunities; Location; Time; Others (Peer/Family Influence and Word-of-Mouth).	616 students in New Zealand and 206 students in U.S.A.	'Inside-out' approach
Oldfield and Baron (2000)	UK	Student Perceptions of Service Quality in a UK University Business and Management Faculty:- Requisite Elements; Acceptable Elements; Functional Elements.	333 undergraduate business and management students	'Inside-out' approach
Ham and Hayduk (2003)	USA	Gaining Competitive Advantages in Higher Education: Analyzing the Gap between Expectations and Perceptions of Service Quality:- Reliability; Responsiveness; Assurance; Empathy; Tangible.	126 respondents (60% response rate) from Southern Wesleyan University and 83 respondents (40% response rate) from Western Michigan University	'Inside-out' approach

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Author(s)	Country	Determinants of Perceived Service Quality	Sample Frame	Approach
Sohail and Shaikh (2004)	Saudi Arab	<i>Quest for Excellence in Business Education: A Study of Student Impressions of Service Quality:-</i> Contact Personnel; Physical Evidence; Reputation; Responsiveness; Access to Facilities; Curriculum.	310 responses	'Inside-out' approach
Nagata, Satoh, Gerrard and Kytomaki (2004)	Japan, England and Finland	<i>The Dimensions that Construct the Evaluation of Service Quality in Academic Libraries:-</i> Effect of service –personal; library as 'Ba'; Collection and Access; Effect of service-organizational.	2328 subjects responded	'Inside-out' approach
Russell (2005)	UK	<i>Marketing Education: A Review of Service Quality Perceptions Among International Students:-</i> Quality education overseas; facilities/environment overseas; improve/learn languages; language teaching facilities; recognition of qualifications; family influence; academic concerns; homesickness; pastoral support within school; university counseling service; academic support.	43 postgraduate students and 50 undergraduate international students	'Inside-out' approach
Joseph, Yakhou and Stone (2005)	USA	<i>An Educational Institution's Quest for Service Quality: Customers' Perspective:-</i> University staff; recreational activities; facilities; campus environment; reputation; cost; family/friends; size/schedule.	450 freshman students	'Outside-in' Approach

Table 3: Five Factors Identified by the Principal Components Factor Analysis

Factor's Name	Variable	Factor Loading	Eigen-value	Percentage of Variance Explained	Cronbach's Reliability Coefficients
Contact Personne 1	Lecturers are courteous, polite & respectful	0.833	6.754	18.277	0.855
	Faculty administrators are courteous, polite & respectful	0.830			
	Lecturers are neat & clean	0.756			
	Faculty administrators perform their duties properly	0.841			
	Faculty administrators are neat & clean	0.636			

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Factor's Name	Variable	Factor Loading	Eigen-value	Percentage of Variance Explained	Cronbach's Reliability Coefficients
Physical Facilities of the Tertiary Institution	The appearance of the campus buildings and ground	0.784	2.172	15.146	0.736
	Campus is neat and clean	0.751			
	Lighting in the classrooms	0.749			
	The comfort of the classrooms and study rooms	0.724			
	Layout of the classrooms	0.685			
Cost of Courses Offered	The miscellaneous service charges are reasonable	0.890	1.894	11.998	0.848
	The cost of the academic programme is reasonable	0.834			
	A variety of scholarships are offered to students	0.791			
Access to Facilities	The convenience of access to the computer facility	0.812	1.295	10.627	0.780
	The convenience of access to the study room facility	0.797			
	The convenience of access to the parking facility	0.752			
Overall students' perceived service quality	Overall students' perceived S.Q.3	0.841	1.459	11.817	0.890
	Overall students' perceived S.Q.2	0.816			
	Overall students' perceived S.Q.1	0.812			

Note:

KMO Measure of Sampling Adequacy = 0.869; $p = 0.000$ ($p < 0.05$); $df = 190$

Cumulative Percentage Rotation Sums of Squared Loadings = 67.865

Table 4: Results of Simple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.060	0.602		5.084	0.000
	Resource Input Model of Education Quality	0.154	0.010	0.574	14.986	0.000

a Dependent Variable: Overall Students' Perceived Service Quality

Independent variables: Resource Input Model of Education Quality

Note: Resource input model of education quality composes of contact personnel, cost of courses offered, access to facilities and physical facilities of the tertiary institution.

R = 57.4 per cent;

Composite Reliability = 0.647

R Square = 33 per cent;

F = 224.586;

Adjusted R Square = 32.9 per cent;

P = 0.000 ($p < 0.05$)

Table 5: Results of Multiple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.030	0.602		5.032	0.000
	Contact Personnel	0.201	0.027	0.314	7.435	0.000
	Access to Facilities	0.150	0.040	0.161	3.763	0.000
	Physical Facilities	0.068	0.027	0.107	2.499	0.013
	Cost of Courses Offered	0.231	0.039	0.244	5.892	0.000

a Dependent Variable: Overall Students' Perceived Service Quality

Independent variables: contact personnel, access to facilities, physical facilities of the tertiary institution, and cost of courses offered.

R = 59.1 per cent;
 F = 60.935;

R Square = 35 per cent;
 P = 0.000 (p<0.05)

Adjusted R Square = 34.4 per cent;