

A Model for Quality Assessment in Higher Education: Implications for ODL Universities

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Abstract

This empirical study aims to develop the performance based higher education service quality model (PHed-model), which is a comprehensive approach compared to the HEdPERF model. The scale reliability for 67-item instrument is confirmed using the Cronbach's Alpha. The principle component analysis followed by a varimax method is used to extract the factor loadings. Based on the overall loaded items, eight dimensions are found, namely, dependability, effectiveness, capability, efficiency, competencies, assurance, unusual situation management, and semester-syllabus-grading (SSG). The chi-square test, relative likelihood ratio test, and RMSEA, CFI and GFI tests are used using the AMOS 5 in order to ensure the validity and the strength of data to fit in the model. The results are satisfactory. This study underlines some critical dimensions and related factors in which the tertiary institutions should concentrate their efforts. Moreover, this study shows the guidelines that are worth for measuring and ensuring the education quality in open and distance learning universities. Although the empirical results for the PHed model are significant, a comparative study among PHed, HEdPERF and SERVPERF can produce relative strengths of these models.

Abstrak

Kajian empirikal ini bertujuan untuk membangunkan model berasaskan prestasi perkhidmatan berkualiti pendidikan tinggi (PHed-model) yang merupakan pendekatan yang komprehensif berbanding model HEdPERF. Ini disahkan melalui skala kepercayaan Cronbach's Alpha untuk instrumen yang mempunyai 67 item. Analisis komponen berprinsipal yang diikuti dengan kaedah *varimax* digunakan untuk mengeluarkan bebanan-bebanan faktor. Berasaskan kepada keseluruhan item terbeban, lapan dimensi yang ditemui iaitu kebergantungan, keberkesanan, kebolehan, efisiensi, kemahiran, jaminan, situasi pengurusan luar biasa dan penggredan silibus semester. Ujian chi-square, ujian

relatif nisbah kemungkinan, dan ujian RMSEA, CFI dan GFI digunakan dalam AMOS 5 untuk mengenal pasti kesahihan dan kekuatan data untuk memadankan model. Keputusan adalah memuaskan. Kajian ini menggambarkan beberapa dimensi kritikal dan faktor berkaitan yang perlu diberi tumpuan oleh institusi pengajian tinggi. Tambahan pula kajian ini menunjukkan beberapa garis panduan yang boleh digunakan untuk mengukur dan menentukan kualiti dalam universiti terbuka dan pendidikan jarak jauh. Walaupun keputusan empirikal untuk model PHed adalah signifikan, kajian perbandingan antara PHed, HEdPERF dan SERVPERF boleh menghasilkan kekuatan relatif model-model ini.

Introduction

Quality in general and service quality in particular are generally accepted as being complex and multidimensional (Galloway & Ho, 1996). Quality, by definition, rests solely on ultimate service receivers or consumers (Cateora & Graham, 2002). O'Neill and Palmer (2004) define service quality in higher education as the difference between what a student expects to receive and his/her perceptions of actual delivery. The services of a university are value-based. Students, faculty members and staff are the major forces of this value-based service activity (Sultan & Tarafder, 2007). Every stakeholder in higher education has a particular view of quality dependent on their specific needs (Voss et al., 2007). The tertiary institutions should be concerned with not only what the society values in the skills and abilities of their graduates (Ginsberg, 1991; Lawson, 1992), but also how their students feel about their educational experience (Bemowski, 1991). These perspectives call attention to the management processes of services within the institutions.

The service quality measurement based on the difference between the expectation and performance, was first developed by Parasuraman et al. (1985, 1988). The exploratory research of Parasuraman et al. (1985), primarily, finds ten dimensions to measure the service quality and develops a conceptual model for service quality. These dimensions are reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing the customer, and tangibles. In a subsequent study, Parasuraman et al. (1988) develop 22 item instruments called SERVQUAL for assessing customer perceptions of service quality in service and retailing organisations. They purify the

scale's reliability through determining coefficient alpha values. In this study, 97 item instruments are developed and finally 54 items with alpha values ranging from 0.72 to 0.83 are accepted. Finally, they develop five-dimensional SERVQUAL with 22 item instruments using the factor analysis. Although this service quality construct is well established, a number of studies have criticised with empirical evidences.

For example, Cronin and Taylor (1992) suggest that the SERVQUAL approach is inadequate to conceptualise and to operationalise the service quality measurement. They develop only-performance-based model, SERVPERF. The SERVPERF scale is the unweighted perceptions components of SERVQUAL, which consists of 22 perception items thus excluding any consideration of expectations. They state that service quality should be conceptualised and measured as an attitude. The SERVPERF scale explains more of the variation in service quality than does SERVQUAL. SERVQUAL scale is based on the satisfaction paradigm rather than an attitude model. They also suggest that performance based measures better reflect long-term service quality attitudes in cross-sectional studies. The subsequent study of Cronin and Taylor (1994) argues that recent conceptual advances suggest that the disconfirmation-based SERVQUAL scale is measuring neither service quality nor consumer satisfaction. Rather, the SERVQUAL scale appears at best an operationalisation of only one of the many forms of expectancy-disconfirmation.

Most studies do not support the five-dimensional SERVQUAL explained by Parasuraman et al. (1988). Moreover, inclusion of 'expectation' as a key variable to measure the service quality is also considered unnecessary (Carman, 1990; Parasuraman et al., 1991a, 1991b; Babakus and Boller, 1992; Abdullah, 2006). Cuthbert (1996) states that despite criticisms by a number of authors, the service quality paradigm, $Q=P - E$ (service quality = performance – expectations) seems to be the most practical model for the measurement of service quality. His investigation involves the modification of the SERVQUAL questionnaire to make it applicable to a higher education context. He states that the model, $Q=P - E$, might be an appropriate model since the service experience of students is not clearly defined in the literature. The service experience of students is much more complex than that of bank, restaurant or telephone users. He states that the ten dimensional SERVQUAL approach is initially attractive and seems to

fit well with the requirements of an investigation into the quality of students' experience in higher education. However, he also states that the five dimensions of the SERVQUAL instrument may well not be the appropriate dimensions for measuring service quality in higher education.

Abdullah (2005, 2006) proposes HEdPERF (Higher Education Performance-only), a new and more comprehensive performance-based measuring scale that attempts to capture the authentic determinants of service quality within higher education sector. He compares and empirically examines the HEdPERF scale against two alternatives namely the SERVPERF and the merged HEdPERF-SERVPERF scales. The HEdPERF measure of service quality is a 41 item scales, consisting of 13 items adapted from SERVPERF, and 28 items generated from literature review and various qualitative research inputs namely focus groups, pilot test and expert validation. The findings demonstrate an apparent superiority of the modified five-factor structure of HEdPERF scale.

Nevertheless, the SERVQUAL and the SERVPERF scales are more applicable to location-free professional services and location-bound customised process based services (e.g. La, Patterson & Styles, 2005). Therefore, scale development for the measurement of service quality in the value based education sector has of importance. One of the attempts is, of course, HEdPERF. The data collection instrument in the HEdPERF, the questionnaire, mostly focuses on the administrative parts of the university. Only a few statements are related to academic aspects. The questionnaire does not include a comprehensive approach for measuring service quality in higher education, rather the questionnaire is a 22 items modified replica of the SERVPERF to measure the performance based service quality in higher education. HEdPERF scale has duplication of the same variable.

Moreover, a few of the statements (variables) have used 'you' viewpoint, therefore, there is a possibility that the respondents may answer each statement based on their general perception instead of what they have experienced, in particular. Engerrand (1975) argues that communication from 'you' perspective brings more involvement in the communication process. Whilst, Rodman (2001) states that in writing a particular real-world situation and information structure, you-attitude, can enhance the expression. The findings of this study suggest that you-attitude expressed in ten versions of the same passage have a cumulative effect of

understanding among the students. Rodman concludes that you-attitude appears to be gradable. Although a few of the items/factors use I/you-approach in designing the data collection instruments of the SERVQUAL, SERVPERF and HEDPERF scales, most of the items are designed from non-personalised perspectives in these scales. Therefore, it is not obscure that respondents' answers were more 'general' instead of 'specific'. Although Chowdhury and Sultan (2005), and Sultan and Tarafder (2007) empirically examine the performance based service quality factors in higher education from the perspective of I/you and subsequently develop the scale, these studies can be criticised of having a small sample size.

It is clear that there are pros and cons in every model and only performance based model can better explain the perceived service quality. Perceived service quality (Q) has been viewed as a form of attitude related to satisfaction (S) but not equals to satisfaction ($Q \neq S$). Therefore, perceived service quality (Q) = attitudes at time t (A_t). An attitude is the function of expectation (E_{t-1}) and performance/experience (P_t), where is E is the expectation and P is the performance/experience at time t, and t-1 refers to lag period or experience before using the service (i.e. expectation). Service marketers use a number of factors including aggressive promotional activities, pricing, visual components and others, and influence consumers (students) to form a set of perceptions regarding a specific service. Consumers are often misled by these drives. These perceptions turn into expectations when consumers evaluate various brands of the same service. The gap between expectation and performance increases if the perceived performance (or perceived service quality as experience by the students) falls short i.e. expectation (E) > performance (P). This is particularly known as the negative disconfirmation, which leads to dissatisfaction. The positive disconfirmation ($E < P$) and confirmation ($E = P$), on the other end, leads to satisfaction, respectively. Since expectations can be bias and are often misleading, eliminating expectation from the attitude function we get $A_t = f \{P_t\} = Q_t$. Guolla (1999) states that students' perceived service quality is an antecedent to student satisfaction. Positive perceptions of service quality can lead to student satisfaction and satisfied students may attract new students through word-of-mouth communication and return themselves to the university to take further study. Therefore, an attitude towards a service refers to the experience of using a service (performance), which forms the

perceived service quality, which in turn leads to satisfaction, or dissatisfaction and builds brand image (repurchase or purchase intension).

Although a few of the studies focus on the distance education quality, they are not comprehensive in terms of proper item selection and model specification (Sim & Idrus, 2003; Akhter, n.d.). Moreover, the studies are inadequate in this field. This article is an attempt to study the service qualities of the international higher education institutes and subsequently develops a service quality model particularly for the international higher education institutes. This study not only contributes in the assessment of the service qualities of the regular stream of the higher education but also it helps in the assessment of the higher education's service qualities of the distance mode institutes utilising the modified version of the same scale. This study also contributes to the future research of the relevant field in the regular and distance mode of higher education. We collect data from the international and regular students of the international universities located at Japan as this is convenient compared to that of the distance mode students studying at the 'Hosho Daigaku' (The Distance Mode University at Japan). The next section discusses the objectives and methodology, the following section discusses the results, the last section discusses conclusion, implications and limitations of the study.

This empirical study aims to develop a comprehensive scale for the measurement of the performance based higher education service quality, and subsequently develops a model, PHEd-Model. Second, this study also examines the strengths of data to fit in the model. Third, it examines the relationship between the developed dimensions and the service quality and lastly, this study shows the research implications for ODL universities. The underlying assumption is that service quality refers to the consumers' (students') attitudes toward a service or experience of using a service and vice versa.

Methodology

Performance based attitudinal items are generated from review of literature of the relevant fields. Of them, 13 items are adapted from the HEdPERF, which is also consistent with the SERVPERF and the SERVQUAL scales, and 54 items are developed from pilot survey among 64 students, focus group interview, experts' opinion and literature review.

Respondents are asked each question from 'you' or 'I' point of view in order to involve them more enthusiastically and to get the answers what they have experienced, in particular. Although the structured questionnaire is lengthy for this study, it confirms to similar research works (Cronin & Taylor, 1992; Teas, 1993a; Lassar et al., 2000; Mehta et al., 2000; Robledo, 2001; Abdullah, 2005, 2006) that attempted to compare various instruments for measuring service quality.

Data are collected from undergraduate, graduate and post-graduate or research students on a seven-point Likert type scale using the random sampling technique, where 1 is set for strongly agree and 7 is set for strongly disagree. Personal interview technique, post mail and electronic mail are used for collecting data from 11 Japanese universities. Among the 1200 questionnaires, 910 are distributed through post mail and 90 questionnaires are sent through e-mail attachments each with a cover letter, and for the 200 questionnaires personal interview technique is used. A total of 362 usable responses are taken into account for a population size of nearly 117,927 international students (Japan Student Services Organisation, JASSO, as of May 01, 2006) for this study. The share of response including interview technique, post mail, and e-mail to total usable responses are 52%, 30% and 18%, respectively. Data are collected during September and October, 2006.

First, we calculate the descriptive statistics. The descriptive statistics can give a better overview on the collected data. Second, the scale reliability is confirmed using the Cronbach alpha (α). Third, the exploratory factor analysis is used in order to determine the key variables and variances explained by the extracted factors using the SPSS version 12. Fourth, the test of unidimensionality, validity, and model fit (e.g. χ^2 , CFI, GFI, RMSEA) are determined using AMOS 5. Lastly, the regression analysis is performed in order to determine the impact of the extracted factors on the service quality. The multivariate regression analyses can give a better understanding on the variables that contribute to the over all quality of the education services. The dependent variable for the regression model is perceived service quality. Since the item 66 is more related to the perceived judgement of service quality, we consider this item to represent the dependent variable. However, the items having a factor loadings of +3

or greater under each dimension and their average scores represent each of the independent variables.

Results and Discussion

The Descriptive Statistics

Figure 1 shows the mean values and mode for each of the items (variables). The mode for each of the items shows the respondents' maximum position while the mean value for each of the items show the average score based on the seven point scale. The descriptive statistics show some critical aspects, for example, Japanese universities should emphasise on hiring competent lecturers/professors instead of hiring company managers, and public and private administrators. Since academics are the core of the value based education sector, particular attention should be given in order to satisfy the students, and internationalise the education services. Academic programme design, syllabus formulation and content design should follow the international requirements. Staff should be proactive in providing services. The results also state that advertisements and relatives/acquaintances (word-of-mouth) motivate students to take admissions, particularly for international students.

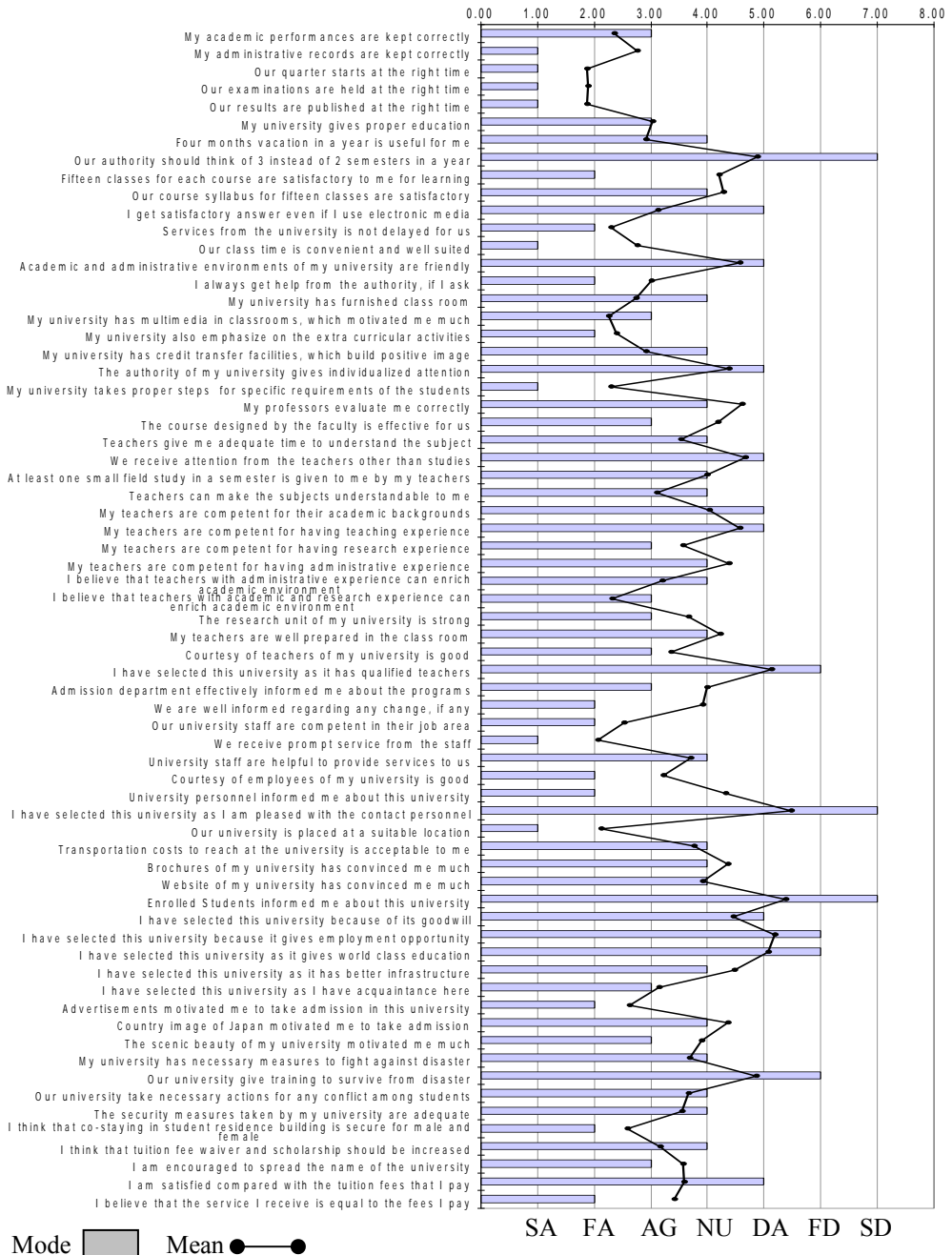


Figure 1 Mean and mode values of the variables

The Results of the Factor Analysis

The proposed measure for the performance based service quality in higher education is a 67 item instrument. The inter-item coefficients of correlation are significant (i.e. coefficient of correlation, $r > 0.30$, and significant at the 5% level) for most of the variables, which indicate a clear indication for the suitability for the factor analysis (Abdullah, 2005). The principal component analysis followed by varimax rotation method is used in exploratory factor analysis. The results show that communalities in variables are between 0.710 and 0.945, and eight factors can explain 86.826% of the total variance. The variable's communality for each variable is also assessed to ensure acceptable levels of explanation, which represents the amount of variance accounted for by the factor solution. The scree test is used to identify the optimum number of factors that can be extracted before the amount of unique variance begins to dominate the common variance structure (Cattell, 1966). The scree plot provides eight factors, and these factors are subsequently rotated using a varimax procedure.

The decision to include a variable in a factor is based on factor loadings greater than ± 0.3 (Hair et al., 1995). According to Hair et al., factor loadings of 0.3 and above are considered significant at $p = 0.05$ with a sample size of 350 respondents ($n = 362$, in this study). The choice regarding factor loadings greater than ± 0.3 is not based on any mathematical proposition but relates more to practical significance. Factor loadings greater than ± 0.3 are considered to meet the minimal level; loading ± 0.4 are considered more important; and if the loading are ± 0.5 or greater, they are considered practically significant (Abdullah, 2005). Appendix 1 shows the results of the factor analysis in terms of factor name, the items loaded on each factor, and the variance explained by each factor. Based on the overall loaded items, the eight dimensions/factors are named, for example, dependability (Depen), effectiveness (Effec), capability (Capab), efficiency (Effi), competencies (Compet), assurance (Assu), unusual situation management (USM), and semester-syllabus-grading (SSG).

The Results of the Reliability Analysis

As a guideline, the α -value of 0.70 and above is considered to be the criteria for demonstrating internal consistency of new scales and established scales, respectively (Nunnally, 1988). The reliability analysis reveals that the Cronbach's alpha coefficients for all the scales are between 0.911 and 0.920 (i.e. much above the 0.70), which suggests that there is a reasonable degree of internal consistencies. However, previous studies (Parasuraman et al., 1985, 1988; Cronin & Taylor, 1992, 1994; Abdullah, 2005, 2006; Carman, 1990; Babakus & Boller, 1992; Finn & Lamb, 1991) were unable to demonstrate such superiority. Therefore, the reliability test results are satisfactory.

The Results of the Unidimensionality Analysis

A measurement model is specified in order to perform the unidimensionality test and confirmatory factor analysis is run by means of structural equation modeling (SEM) technique within AMOS 5 framework. The observed variables are the eight dimensions extracted through exploratory factor analysis namely dependability (Depen), effectiveness (Effec), capability (Capab), efficiency (Effi), competencies (Compet), assurance (Assu), unusual situation management (USM), and semester-syllabus-grading (SSG). The latent variable is the perceived service quality. The factor loadings of +3 or greater under each dimension/variable are separated, and their average scores represent each of the observed variables.

The overall fit of the model to the data is evaluated in various ways. Specifically, an exact fit of a model is indicated when the *p-value* for chi-square (χ^2) is above 0.05. However, it is generally acknowledged that most models are useful approximations (i.e. $p < 0.05$) that do not fit perfectly in the population (Ali & Shamsuddoha, 2007; Dawes & Massey, 2006). In other words, the null hypothesis of perfect fit is not plausible to begin with and is accepted only if the sample is not allowed to get too big. Browne and Mels (1992) state that the null hypothesis of perfect fit is implausible and that it does not help much to know whether or not the statistical test has been able to detect that it is false. While the overall χ^2 for our measurement model is significant (*p-value* is 0.021), it is well

established that this statistic is sensitive to large sample sizes and complex models (e.g. Hair et al., 1998).

Although chi-square is sensitive to sample size and tends to be significant in large samples, a relative likelihood ratio between a chi-square and its degrees of freedom is used as another measure of goodness of fit. Eisen et al. (1999) suggest that a relative likelihood ratio of five or less is considered an acceptable fit. Our model shows that the relative likelihood ratio is, $\frac{\chi^2}{df} = 3.85$, which is well within the acceptable range.

The root mean square error of approximation (RMSEA), which is the measure of the discrepancy per degree of freedom, generally considered as one of the most informative fit indices (Brown & Cudeck, 1993; Diamantopoulos & Sigauw, 2000). The criteria for approximate model fit are: RMSEA < 0.05 = close fit, RMSEA > 0.05 to < 0.08 = fair fit and RMSEA > 0.08 to 0.10 = poor fit (Brown & Cudeck, 1993; Kelloway, 1998; Chow et al., 2001). The RMSEA value for the default model is 0.076, an evidence of fair fit to the data. Therefore, the results show that the model fits fairly and represents a reasonably close approximation in the population.

The comparative fit index (CFI) of this model is 0.996, which is close to 1 and resembles a very good-fit (Bentler, 1990). Likewise, the goodness of fit index (GFI) for the same model is 0.995, which is also close to 1 and indicates a very good-fit. Overall, these fit statistics are considered acceptable enough to establish the validity of this measurement model.

The Results of the Multivariate Regression Analysis

The dependent variable for the regression model is perceived service quality (PSQ). We get eight independent variables including dependability (Depen), effectiveness (Effec), capability (Capab), efficiency (Effi), competencies (Compet), assurance (Assu), unusual situation management (USM), and semester-syllabus-grading (SSG). The *p*-values of the coefficients of correlations among these variables are significant at the 5% level except those between Effec and USM, and Effec and SSG. The estimated regression model is as follows:

$$\begin{aligned}
 PSQ = & \alpha + \beta Depen + \delta Effec + \phi Capab + \varphi Effi + \gamma Compet \\
 & + \eta Assu + \lambda USM + \mu SSG + \varepsilon_t
 \end{aligned}
 \tag{I}$$

The results show that the *t*-statistics for the coefficients are significant at the 5% level. However, it is not significant for SSG at the 5% level. The results of the ANOVA (analysis of variance) test show that the *p*-value of the F statistic is less than 0.05, which indicates that the independent variables of this model can explain the variation in the dependent variable. The multiple correlation coefficient (R) is 0.948 implying that there is a strong relationship between the observed and the predicted values of the dependent variable. The R² is 0.898 implying that 89.8% of the variation in the dependent variable can be explained by this model. The adjusted R squared is 0.896, which also indicates a close reflect of the goodness of fit of the model in the population. The Durbin-Watson statistic is 2.08, slightly higher than 2, assuming that there is no serial correlation.

Conclusion and Implication

This study was an attempt to develop a specialised scale for the value based higher education industry, and subsequently develops a model, PHED–Performance Based Higher Education Model. The results of the empirical examination of this model are satisfactory.

Quality assurance in Open and Distance Learning (ODL) universities is a burning issue at present time. In fact, ODL has many aspects including formal, informal and non-formal education. Quality assurance and enhancement in these streams need careful attention. For example, in formal education close ended questionnaire may be applicable. Whilst, it is poorly fit for the informal and non-formal categories. Open ended scheduling technique and/or focus group interview might be of useful for collecting data from the students of informal and non-formal categories. Moreover, longitudinal and panel studies have of importance in these categories. ODL largely depends on technology and media, course materials, and then on academic and administrative aspects. Therefore, their effectiveness and efficiencies also posit the ODL's quality assurance and enhancement. Dramatic presentations, documentary evidence can also enhance quality of teaching materials.

Limitations and Further Research

This study was an attempt to develop a model for measuring the service qualities for tertiary institutions and subsequently show the research directions for quality assurance and enhancement related to open and distance learning. Since the standard deviations in the descriptive statistics vary between 0.91 and 2.23 for 67 item instruments, future studies should put particular attention in selecting the extent of the Likert type scale; and the samples especially between the fee paying and non-fee paying students, international and domestic students, and the students who study in various programs at various levels. Although the empirical results for the PHed model are significant and seems to play a greater contribution in performance based service quality measurement for the higher education institutions, a comparative study among PHed, HEDPERF and SERVPERF can produce relative strengths of these models.

References

- Abdullah, F. (2005). HEDPERF versus SERVPERF: The quest for ideal measuring instrument of service quality in higher education sector. *Quality Assurance in Education*, 13(4), pp. 305–328.
- Abdullah, F. (2006). Measuring service quality in higher education: HEDPERF versus SERVPERF. *Marketing Intelligence and Planning*, 24(1), pp. 31–47.
- Akhter, Z. (n.d.). Quality assurance in secondary education program of Bangladesh Open University: Present status and challenges.
- Ali, M.Y. & Shamsuddoha, A.K. (2007). Export promotion programs as antecedents of internationalization of developing country firms: A theoretical model and empirical assessment. *Journal of Global Business Advancement*, 1(1), pp. 20–36.
- Babakus, E. & Boller, G.W. (1992). An empirical assessment of the SERVQUAL scale. *Journal of Business Research*, 24(3), pp. 253–268.
- Bemowski, K. (1991). Restoring the pillars of higher education. *Quality Progress*, October, pp. 37–42.
- Bentler, P.M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, pp. 238–246.
- Brown, M.W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In Bollen, K.A. and Long, J.S. (Eds.). *Testing Structural Equation Models*. Newbury Park, CA: Sage.
- Browne, M.W. & Mels, G. (1992). *RAMONA User's Guide*. Columbus, OH: The Ohio State University.
- Cateora, P.R. & Graham, J.L. (2002). *International Marketing*. India: Tata, McGraw-Hill.

- Carman, J.M. (1990). Consumer perceptions of service quality: An assessment of the SERVQUAL dimensions. *Journal of Retailing*, 66, pp. 33–55.
- Cattell, R.N. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1, pp. 245–276.
- Chow, J.C.C., Snowden, L.R. & McConnell, W. (2001). A confirmatory factor analysis of the BASIS-32 in racial and ethnic samples. *The Journal of Behavioral Health Services & Research*, 28(4), pp. 400–411.
- Chowdhury, M.H.K. & Sultan, M.P. (2005). Determinants of perceived service quality – an empirical study. *Journal of Business Administration*, 31(1 & 2), pp. 179–188.
- Cronin, J.J.Jr. & Taylor, S.A. (1992). Measuring service quality: A reexamination and extension. *Journal of Marketing*, 56(3), pp. 55–68.
- Cronin, J.J.Jr. & Taylor, S.A. (1994). SERVPERF versus SERVQUAL: Reconciling performance-based and performance-minus-expectations measurement of service quality. *Journal of Marketing*, 58(1), pp. 125–131.
- Cuthbert, P.F. (1996). Managing service quality in HE: Is SERVQUAL the answer (Part I & II). *Managing Service Quality*, 6(2), pp. 11–16.
- Dawes, P.L. & Massey, G.R. (2006). A study of relationship effectiveness between marketing and sales managers in business markets. *Journal of Business and Industrial Marketing*, 21(6), pp. 346–360.
- Diamantopoulos, A. & Siguaw, J.A. (2000). *Introducing LISREL*. London: Sage.
- Eisen, S.V., Wilcox, M. & Leff, H.S. (1999). Assessing behavioral health outcomes in outpatient programs: Reliability and validity of the BASIS-32. *Journal of Behavioral Health Sciences & Research*, 26(4), pp. 5–17.
- Engerrand, D.D. (1975). Teaching the ‘you’ viewpoint. *Business Communication Quarterly*, 38(1), pp. 26–27.
- Finn, D.W. & Lamb, C.W. (1991). An evaluation of the SERVQUAL scale in a retailing setting. In Holman, R. and Solomon, M.R. (Eds.), *Advances in Consumer Research, Association for Consumer Research*, Provo, UT, pp. 483–490.
- Galloway, L. & Ho, S. (1996). A model of service quality for training. *Training for Quality*, 4(1), pp. 20–26.
- Ginsberg, M.B. (1991). *Understanding Educational Reforms in Global Context: Economy, Ideology and the State*. Garland, New York.
- Guolla, M. (1999). Assessing the teaching quality to student satisfaction relationship: applied customer satisfaction research in the classroom. *Journal of Marketing Theory and Practice*, 7(3), pp. 87–97.
- Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1995). *Multivariate Data Analysis with Readings*. Englewood Cliffs, NJ: Prentice-Hall International Editions.
- Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C. (1998). *Multivariate Data Analysis*, 5th ed. Englewood Cliffs, NJ: Prentice-Hall.
- Kelloway, E. (1998). *Using LISREL for Structural Equation Modeling: A Research Guide*. Thousand Oaks, CA: Sage.
- La, V.Q. Patterson, P.G. & Styles, C.W. (2005). Determinants of export performance across service types: a conceptual model. *Journal of Services Marketing*, 19(6), pp. 379–391.

- Lassar, W.M., Manolis, C. & Winsor, R.D. (2000). Service quality perspective and satisfaction in private banking. *Journal of Services Marketing*, 14(3), pp. 244–271.
- Lawson, S.B. (1992). Why restructure? An international survey of the roots of reform, *Journal of Education Policy*, 7, pp. 139–154.
- Mehta, S.C., Lalwani, A.K. & Han, S.L. (2000). Service quality in retailing: relative efficiency of alternative measurement scales for different product-service environments. *International Journal of Retail & Distribution Management*, 28(2), pp. 62–72.
- Nunnally, J.C. (1988). *Psychometric Theory*, Englewood Cliffs, NJ.: McGraw-Hill.
- O’Neill, M.A. & Palmer, A. (2004). Importance–performance analysis: A useful tool for directing continuous quality improvement in higher education. *Quality Assurance in Education*, 12(1), pp. 39–52.
- Parasuraman, A., Zeithaml, V.A. & Berry, L.L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), pp. 41–50.
- Parasuraman A., Zeithaml V.A. & Berry L.L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), pp. 12–40.
- Parasuraman A., Zeithaml V.A. & Berry L.L. (1991a). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, 67(4), pp. 420–450.
- Parasuraman, A., Berry, L.L. & Zeithaml, V.A. (1991b). More on improving service quality measurement. *Journal of Retailing*, 69(1), pp. 140–147.
- Robledo, M.A. (2001). Measuring and managing service quality: Integrating customer expectations. *Managing Service Quality*, 11(1), pp. 22–31.
- Rodman, L. (2001). You-attitude: A linguistic perspective. *Business Communication Quarterly*, 64(4), pp. 9–25.
- Sim, H.K.C. & Idrus, R. (2003). Student satisfaction in Malaysia: Customer-focused learner support. *Asian Journal of Distance Education*, 1(1), pp. 69–77.
- Sultan, M.P. & Tarafder, T. (2007). Critical factors in service quality measurement for private universities: The case of Bangladesh. *Ritsumeikan Journal of Asia Pacific Studies*, 22, pp. 75–98.
- Teas, R.K. (1993a). Expectations, performance evaluation, and consumers’ perceptions of quality. *Journal of Marketing*, 57(4), pp. 18–34.
- Voss, R., Gruber, T. & Szmigin, I. (2007). Service quality in higher education: The role of student expectations. *The Journal of Business Research*, doi:10.1016/j.jbusres.2007.01.020.

Appendix

Factor Loadings

<i>Items</i>	<i>Dimensions</i>	<i>Dep.</i>	<i>Eff.</i>	<i>Cap.</i>	<i>Effi.</i>	<i>Com.</i>	<i>Assu.</i>	<i>USM</i>	<i>SSG</i>
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
My academic performances are kept correctly		.306	.802						
My administrative records are kept correctly		.668	.552						
My professors evaluate me correctly		.866		.325					
Our quarter starts at the right time		-.451			.403	.559	-.309		
Our examinations are held at the right time			.606		.497		-.330		
Our results are published at the right time			.606		.445	.402	-.312		
My university gives proper education				.794					
Four months vacation in a year is useful for me		-.585	-.342		-.334				.437
Our authority should think of 3 instead of 2 semesters in a year			-.713						
Fifteen classes for each course are satisfactory to me for learning		.707	.515						
Our course syllabus for fifteen classes are satisfactory				.646			-.338		.472
The course designed by the faculty is effective for us		.698	.358	.374					
Teachers give me adequate time to understand the subject		-.391		.712					
We receive attention from the teachers other than studies		.658	-.338	.447					
University staff are helpful to provide services to us		.339		.630					
Teachers can make the subjects understandable to me		-.436		.727					
My teachers are competent for their academic backgrounds		.670	-.507						
My teachers are competent for having teaching experience		.656		.414			-.325		
My teachers are competent for having research experience		.813			-.383	.314			
My teachers are competent for having administrative experience		.741		.484					
I believe that teachers with administrative experience can enrich academic environment		-.491		.315	.374	.397			
I believe that teachers with academic and research experience can enrich academic environment		-.548		.390	.417				
Our university staff are competent in their job area			.456	.485		.313	.431		
We receive prompt service from the staff			.483	.633			.396		
The research unit of my university is strong		.816				.385			
At least one small field study in a semester is given to me by my teachers				.577			-.385		-.476

<i>Items</i>	<i>Dimensions</i>	<i>Dep.</i>	<i>Eff.</i>	<i>Cap.</i>	<i>Effi.</i>	<i>Com.</i>	<i>Assu.</i>	<i>USM</i>	<i>SSG</i>
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
I get satisfactory answer even if I use electronic media		-.539	-.515	.303		.424			
Services from the university is not delayed for us		-.485	.455	.410		.455			
Our class time is convenient and well suited		.401	.691		-.343				
Our university is placed at a suitable location			.479	.330	-.480		.305		
Transportation costs to reach at the university is acceptable to me		-.501		.689					
Courtesy of employees of my university is good		.804	.323						
Courtesy of teachers of my university is good		.890							
My teachers are well prepared in the class room		.925							
Academic and administrative environments of my university are friendly		.800	-.370						
Admission department effectively informed me about the programs		.869							
We are well informed regarding any change, if any		.726	.432		.340				
Brochures of my university has convinced me much		.773			.348	-.386			
Website of my university has convinced me much		.549			.363	-.427			
University personnel informed me about this university		.671	.556						
Enrolled students informed me about this university		.547	-.688						
I always get help from the authority, if I ask		.471	.572				.354		
I am satisfied compared with the tuition fees that I pay		.535	.616						
I have selected this university because of its goodwill		.787	-.421						
I have selected this university because it gives employment opportunity		.678	-.557						
I have selected this university as it gives world class education		.727	-.546						
I have selected this university as it has qualified teachers		.735	-.543						
I have selected this university as it has better infrastructure		.877							
I have selected this university as I am pleased with the contact personnel		.577	-.723						
I have selected this university as I have acquaintance here		-.530		.516		-.309			
Advertisements motivated me to take admission in this university		-.571	.421	.365				.374	
Country image of Japan motivated me to		.804			.374				

<i>Items</i>	<i>Dimensions</i>	<i>Dep.</i>	<i>Eff.</i>	<i>Cap.</i>	<i>Effi.</i>	<i>Com.</i>	<i>Assu.</i>	<i>USM</i>	<i>SSG</i>
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
take admission									
My university has necessary measures to fight against disaster		.323		.546	.512				
Our university give training to survive from disaster			-.508	.542				.328	
I think that co-staying in student residence building is secure for male and female		-.350	.382	.632					
Our university take necessary actions for any conflict among students		.325			-.316			.591	
The security measures taken by my university are adequate		.434	-.334	.425		.376	.361		
My university takes proper steps for specific requirements of the students			.612	.577					
The authority of my university gives individualised attention			-.348	.655	-.383				
I am encouraged to spread the name of the university				.376	.355	-.449			
The scenic beauty of my university motivated me much		.805							
My university has furnished class room		-.568	-.399	.301		.408			
My university has multimedia in classrooms, which motivated me much		-.553	-.304		.363			.332	
My university also emphasise on the extra curricular activities			.321		.525			.384	
My university has credit transfer facilities, which build positive image		-.527		.579	.317				
I believe that the service I receive is equal to the fees I pay		.641	.436	-.313		.342			
I think that tuition fee waiver and scholarship should be increased			-.525	-.364		.376			