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# Exploratory Factor Analysis of Service Quality Dimensions for Higher Educational Institutes: A Students Perspective

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## Abstract

The paper, which is a part of the study to monitor the service quality in the education sector, sought to empirically validate the service quality dimensions that are relevant to the higher education institutes across India.Design and Methodology: Exploratory Factor Analysis (EFA) was carried out to identify the underlying latent variables that significantly determine the service quality in higher education institutes (HEI's) in India. 600 Post-Graduate (PG) students were sampled from three universities located in Punjab in a cross-sectional survey wherein a self-administered structured questionnaire was used for getting the relevant information.Findings: On analysis four factors emerged highlighting the importance of faculty staff behaviour, tangibles, delivery and attitude, as the ones which significantly affect the quality of service being offered by the HEI's. The initial reliability testing for the dimensions yielded a Cronbach alpha ranging from 0.906 to 0.943 indicating that the modified instrument I-SERVQUAL can be conveniently used by HEI's for measuring service quality.

***Index terms***— service quality, I-SERVQUAL model, higher education, HEI?s, universities, dimensions, exploratory factor analysis.

## 1 Introduction

he term globalization, which has formed the backbone of an open market regime, signifies open competition among firms for customers in worldwide markets (P.N. Rastogi, 2002). The cornerstone of this competition is quality, cost and performance of their products and services. As globalization, implying free trade in products/services, offers a wide choice to customers across borderless world, it also exerts continuous pressure on competing companies to upgrade quality, reduce costs and develop superior products/services in terms of customer's need and expectations. Demand from customers, technological development, change of value and globalization are some of the factors that drive the need to change and develop an organization (Bruzelius and Skarvad 2004). The changes in business environment have led to the development of new techniques for organizing and managing companies/ organizations. These changes have been necessitated due to international competition and higher education is no exception.

Higher education in India, even if we look globally, is very costly and it has all come down to consumers wanting value for their money. They need quality education to go with the higher fee, which they have to shell out. They expect the universities, where they intend to study, to have the best infrastructure, highly qualified faculty and the best of facilities. Thus, universities too have been brought under the ambit of so called 'service' organizations, where most important characteristic separating them neatly from products is the sheer impossibility to separate production from consumption. In India we have approximately 480 universities in public and private sector. In the current scenario as it exists, the Indian Higher Education Sector is facing turbulent times. Entry barriers are being lowered, distance education is being expanded GNOU for example, has become world's largest university having 3 million students on roll with presence in 35 countries, private universities are mushrooming all over and foreign universities are all set to enter India in a big way. Those in the higher education sector are certainly

in for a stiff competition and only those which provide the best of services at an affordable price will survive. This huge growth in student numbers, internationallization of education, government looking at reducing funding and increasing competitive pressures have prompted many universities and other education providers to focus on quality customer service.

# 2 II.

# 3 Service Quality and Service Management

As the service sector grows and begins to play a very vital role in the global economy, the study of services and innovation are becoming increasingly important. As service products distributed regionally, nationally and globally have started contributing large amounts to company revenue streams; knowledgeintensive business services aimed at enhancing performance require reliable methods of measurement, assessment, and improvement (Spohrer & Maglio, 2008). As a result, accurate and reliable instruments that assess service quality are of great interest to companies whose revenues come from service delivery.

It is well known that service quality is based on multiple dimensions (Parasuraman et al, 1985). Gronroos (1982) Lehtinen (1982) proposed on service quality, the importance of corporate image and the experience of service quality. Customers often have contact with the same service firm, which implies that they bring their earlier experiences and overall perceptions of a service firm to each encounter. Hence, the image concept was introduced as yet another important attribute. **??**ronroos (2001) expressed that the image can be viewed as a filter in terms of a customer's perception of quality. Parasuraman et al (1985) derived ten dimensions that influence service quality from what they suggested that quality evaluations are not made exclusively on the outcome of service. Moreover, they also involved evaluations of the service delivery process. The first dimension, when evaluation happens after service performance, focuses on "what" service is delivered and is called 'outcome quality'. The second dimension, 'process quality', is when the evaluation occurs while the service is being performed. In 1988 they defined service quality as "the degree of discrepancy between customer's normative expectations for the service and their perceptions of the service performance" (Parasuraman et al, 1988). Brady and Cronin (2001) presented a three-factor model describing service quality, ambient conditions, facility design and social factors. They defined that service environment are elements of the service delivery process and it seems best to include them as components of the functional dimension.

Higher education has increasingly been recognized as a service industry and, as a sector, it must strive to identify the expectations and needs of its clients, who are the students (Mello et al, 2001). According to **??**ovelock (2001), education service is classified as a service with intangible actions, directed towards the minds of people, with continuous delivery, conducted through a partnership between the service organization and its client, and although it provides high personal contact, there is low customization.

Many scholars like Bemoski (1991), Bill D. (1992), Chadwick and Ward (1987), Comesky et al (1991) and many others have attempted to measure service quality in higher education, but it is still a challenging job to find a suitable measuring tool. Ewell (1993) suggested that there may be a danger in a strict application of the tenets of consumer service to students if the only recognized bottom line is student's satisfaction. Astin (1975) expressed his view that students' perception of his/her experience may be one of the most critical elements of education.

One of the foundational approaches to identifying service quality parameters has come from the developers of SERVQUAL instrument and the creator of Gaps theory approach to Service quality (Parasuraman et al, 1991), who have identified six dimensions of service quality which are tabulated as below in Table 1. The present work is aimed at finding the reliability of the questionnaire developed for measuring the service quality of higher education providing universities. The questionnaire, I-SERVQUAL, has been developed by modifying the parameters ensconced in the SERVQUAL to suit the needs of the survey to be conducted for the purpose. The modified parameters have been put up alongside those identified by Parasuraman et al (1991) in Table 1.

# 4 Research Methodology

For determining the dimensions affecting the service quality of the academic institutions, the original SERVQUAL Model of Parasuraman et al (1991) was modified completely, making it suitable for universities/educational institutes. The modified and refined model had 55 items tentatively distributed to cover the six main dimensions of Faculty, Facilities, Tangibles, Attitude, Reliability and Delivery. The service quality as perceived by the students was measured on a five point Likret Scale ranging from 'Strongly disagree' to 'Strongly agree' as a response to the statements in the questionnaire. In order to distinguish between the revised SERVQUAL and the version customized for this study, the latter has been referred to as I-SERVQUAL.

# 5 a) Sampling

As suggested by Deming consumers determine quality. Consequently service quality should be researched studying customers' preferences and needs. Thus, the unit of analysis of the present study was the consumers, in this case, the PG students studying in various universities of Punjab. The PG students were chosen for the study, as they have already studied for their undergraduate program in the same or another institute and thus would be

better equipped to respond to the items of the questionnaire. The survey was conducted for the PG students, studying in various disciplines, on the campus of the three Universities of Punjab, each belonging to a different category. Of the participating universities considered, one was a full-fledged government university, the second one a deemed-to-be-university and the third participating university was a private university established under the state act.

A self-administered, structured questionnaire was used to collect the data from the respondents, who were the students studying in final year at the abovementioned campuses in various PG courses. The combined student strength of the above three universities, enrolled in various PG courses, would be approximately 10,000, and for a population of 10,000 a sample size of 370 is appropriate according to Krejcie & Morgan (1970). Thus, of the 10,000 students, the survey questionnaire responses were obtained from 600 students (200 students of each University). The questionnaire for the study had six items related to the respondent's identification data, and included fifty items qualifying the proposed six dimensions of service quality. The specific items of the questionnaire are depicted in Table 2. The faculty provides correct answers to students' questions.

# 6 V5

Faculty is never too busy to attend to students' problems and is available beyond office timings i.e. easily accessible.

# 7 V6

University faculty inculcates interest in the subject among students. V7

The faculty is immaculately dressed befitting their status.

# 8 V8

The faculty provides prompt and timely service to you V9 Faculty communicates in a language that you understand. V10

Examination papers are evaluated without bias and in time V11

The university library is easily accessible to students V12

The university library is modern and well stocked with access to print and e -journals V13 University Hostels are comfortable to stay in with modern and appealing facilities V14 Food/Beverages served in Hostels are as per students liking V15 University hostels have internet connectivity and other facilities like Gymnasium, common room etc.

# 9 V16

The university has a proper arrangement to give medical aid to students in emergency V17

University canteens are hygienic and have a wide range of servings of food and beverages. The behavior of the staff makes you feel that you can trust them and have confidence in them.

# 10 V45

The teaching and learning process is up-to-date as promised by the university V46

Students feel safe and secure in the university V47 University curriculum is need based and useful for future job V48

The behavior of the staff makes you feel that you can trust them and have confidence in them V49

University shows interest in solving problems V50

The required level of service is delivered, with clearly stated terms and conditions V51

The full range of services is delivered to meet your changing needs.

# 11 V52

Appropriate services are delivered as promised V53

A dependable service which does not vary over time is provided V54 An equitable service is delivered to individual students, as well as groups of students V55

The interpersonal skills are adequately addressed in the curriculum

The questionnaire was pre-tested with a sample of thirty seven PG students selected purposively. Fink (2003b in Saunders, Lewis, Thornhill, 2007) had suggested that a minimum of ten respondents was sufficient for pre-testing of the questionnaire, and the same was kept as the basis for the pre-testing size of the sample. After carrying out the pretesting, the questionnaire was provided to the respondent population of the three universities (200 PG students each) through personal contact by the research assistants. EFA is a method that aims at extracting maximum variance from the dataset within each factor (Chatfield and Collins, 1992). In the empirical work of Costello and Osborne (2005) on best practices in exploratory factor analysis, it was strongly recommendded to use Principal Component Analysis (PCA) because of its potency of revealing the underlying structure of the latent variables with an appropriate 2 Global Journal of Management and Business Research A Volume XIV Issue VIII Version I Year ( ) rotation method. In rotation methods, it has generally been seen that,

ML (Maximum Likelihood) or PAF (Principal Axis Factoring) gave the best results, depending on whether the data are generally normallydistributed or significantly non-normal, respectively (2005: 2). Thus, for the present study ML extraction method with Promax with Kaiser Normalization rotation method was chosen for EFA. This was performed on all the fifty-five items (Table 2). On the criteria for selecting factor loading, generally factor loading above 0.6 is considered high while factor loading greater than or equal to 0.3 is considered moderately high (Klien, 2005).

Therefore the cut-off for analysing factor loading was $0.50 \pm 0.03$.

IV.

# 12 Analysis of Data

The data pertaining to the respondents was examined for demographic and other academic details.

The factor analysis and item/scale reliability were carried out for the responses to the dimensional items using SPSS22 software. The details are provided in the succeeding sub-sections.

# 13 a) Respondent Characteristics

The characteristics of the students who responded to the I-SERVQUAL questionnaire are presented in Table 3. In terms of the gender, 58.67% of the students who participated in the survey were males and remaining 41.33% were females.

73% of the respondents were less than 25 years of age, whereas, only 27% of them belonged to an age group of more than 25 years, implying that most of the respondents were fairly young. From the point of view of the course of study undertaken by the respondents, an equal percentage of students (33.33%) were doing their post-graduation in engineering, science and management, respectively. In terms of the academic performance of the students, who were in the final year of their respective program, it can be observed that majority of them, 51.17% had an average percentage score till their pre-final year term. Only 16.33% of the respondents were having below average academic performance and more than 32% of the respondents had performed admirably in their respective academic discipline. This implies that the respondent's data is slightly skewed towards students with above average performance.

V.

# 14 Discussion of Results

The pre-testing analysis of the data, sample of thirty seven PG students selected purposively, showed a very high value, 0.958, for the Kaiser-Meyer-Olkin Measure, thereby indicating the suitability of the research data for structure detection, i.e. the proportion of variance in the items that might be caused by underlying factors. Thus, generally the data were found to be useful for factor analysis. This was confirmed further by the significance of the Bartlett's test of sphericity tests (X2: 5259.079, df: 465.000, Sig.: 0.000) indicating that the variables were not unrelated and therefore suitable for structure detection.

After examining the suitability of the questionnaire through pre-testing, the responses to all the fifty five items were obtained from a total of 600 PG students spread across the three selected universities. Exploratory factor analysis was carried out for the data so obtained. The Tables 4 (a) and 4 (b), showing the pattern matrix and structure matrix, emerged after factor analysis. As can be observed from the tables, a total of four factors or components emerged and 24 items, out of the fifty-five measurement indicators, got eliminated. All the eliminated measurement indicators had a corrected item-total correlation below 0.50. As a result, 31 measurement indicators of service quality were retained for subsequent analysis. On careful examination of the data it could be seen that most of the items pertaining to faculty, tangibles and delivery were the least affected and thus, are the main components which affect the service quality being offered by higher education universities.

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Volume XIV Issue VIII Version I Year ( ) a) Regrouping of items and discussion As can be observed from the Table 5, the emerged items could be conveniently grouped into four dimensions.

Looking at the regrouped items of the emerged Factor 1 after EFA, it was found safe to label 15 of the 31 retained items (V44, V42, V43, V1, V37, V5, V4, V8, V10, V9, V48, V3, V41, V39, V40) under the dimension of 'Faculty and Staff Behaviour', as all the items intrinsically related to that aspect only.

The emerged Factor 2 contained seven items (V26, V28, V27, V29, V36, V30, V31) which could be categorized under the 'Tangibles' dimension of service quality.

On careful examination of the emerged Factor 3, which had six items (V53, V54, V52, V55, V51, V50), it was discovered that these items relate to the 'Delivery' aspect of service quality.

The emerged Factor 4 had only three items (V14, V13, V15), which clearly identified with the 'Facilities' aspect of the service quality of the HEI's. Emerged 'Factor 1' had a good mix of the items related to the behaviour and personality of the Faculty and Staff members, with whom the PG students interact very frequently. The behavioural aspects were very prominent in all the items of this dimension. It included items unequivocally associated to the day-to-day interactions faculty and staff members have with the students, like: How much the University faculty shows interest to solve student's problems (V1); How much confidence and motivation does the

university faculty offers (V3); Does the faculty provide correct answers to student's questions (V4); Is the faculty easily accessible (V5); Does the faculty provide prompt and timely service (V8); Does the faculty communicates in a language that student's understand (V9); and Does the faculty evaluates the examination papers without bias and in time (V10). The remaining items were also found to mirror the behavioural aspects of the faculty and staff, which included: Do the teachers and students communicate well in classroom (V37); Are the faculty and staff members flexible in providing the service desired (V39); Do the faculty/staff members reassure student's in terms of their personal anxieties, concerns and problems (V40); Are the faculty and staff members sympathetic to individual needs, while respecting privacy of students (V41); Do students feel safe under the care of faculty and staff (V42); Do the faculty/staff members respect confidence and feelings of students (V43) and Does the behaviour of staff makes students feel that they can trust them and have confidence in them (V44). The V48 item in this group was similar to the V44 item. As all these items correlated the behavioural aspects of the faculty and staff members, thus the most appropriate label for this was considered to be 'Faculty and Staff Behaviour'.

Emerged 'Factor 2' contained seven items which very well allied to the Tangibles dimension of service quality. These items refered to the infrastructure facilities on the university campuses like, buildings and roads (V26), infrastructure for sports and games (V27), infrastructure for organizing cultural and technical festivals (V28), well lit modern class rooms with appealing fixtures and equipped projection systems (V29 & V30), well lit and modern laboratories well equipped to handle classes (V31), and cleanliness on campus (V36).

Emerged 'Factor 3' had six items which relate to the 'Delivery' aspect of the services provided by the

 university. This dimension included items like, Whether required level of service is delivered, with clearly stated terms and conditions (V50), Is a full range of service delivered to meet the changing needs (V51), Are appropriate services delivered as promised (V52), Is dependable service provided (V53), Is equitable service delivered to the students (V54), Are inter-personal skills adequately addressed in the curriculum (V55).

Emerged 'Factor 4' had only three items which belonged to the 'Facilities' dimension. This included items like, Whether university hostels are modern and have appealing facilities and are comfortable to stay in (V13), Are food and beverages served to students liking (V14), Do the university hostels have internet connectivity and other facilities like Gymnasium, common room etc. (V15).

Thus, from the above discussion, it could be concluded that, as perceived by the PG students, the most important factor of service quality which emerged after EFA is the 'Faculty and Staff Behaviour', which has b) Goodness of fit and reliability of the model The advantage of using ML method of extraction was that it provided the goodness of fit statistics for the factor model, very similar to Confirmatory factor analysis. As could be observed from the Chi-square, goodness of fit test was non-significant, indicating that there was a difference in perception amongst the groups included in this study. The alternate measure for evaluating the goodness of the fit was CMIN/Df value which is the ratio of Chi-Square statistics and degree of freedom. The value of CMIN/Df should lie between 1 and 3, and lower the value, better the model is. The calculated CMIN/Df value for the model was 1.59 which exhibits model fit, as could be observed from the statistic given in Table 6. Reliability refers to the ability of the instrument used to deliver consistent results every time it is applied. Statistically, a Cronbach alpha measurement could be used to determine the reliability of the instrument used. A Cronbach alpha value of more than or equal to 0.7 (Hair et al., 2010), if achieved signifies a very high level of reliability. The Cronbach's alphas for the extracted factors are shown in the Table 7, along with their labels and specification. All the alphas were above 0.85, which was an indicator of a very high level of reliability. The factors were all reflective because their indicators were highly correlated and are largely interchangeable (Jarvis et al. 2003).

Thus, the four factors, which have emerged from the EFA were Faculty and staff behaviour, Tangibles, Delivery and Facilities. These are very much in line with the earlier studies which have been carried out for evaluating the service quality dimensions in higher education institutes. Palli & Mamilla (2012), found out that students at SV University, Tirupati, were satisfied with services in terms of their reliability, assurance, tangibility, and empathy but not much satisfied with responsiveness. The study revealed that the respondents who had studied self-supporting course were more satisfied than the respondents who had studied different courses. Sproule (2000), also found that teachers' ability, excellence, coordination and reasonability greatly influenced students' class performance, and these items too form a major component of the service quality dimensions of HEI's as had also been found in the present study. Navarro et al. (2005) also mentioned that students evaluate the quality of organization on the basis of tangibility (teachers), reliability and responsiveness (methods of teaching) and management of the institution and these factors have direct influence on the level of students' satisfaction (opinions).

# 17 VI.

# 18 Conclusions

It is well known that service quality is based on multiple dimensions and most of the studies on service quality are based on SERVQUAL developed by Parasuraman et al (1985), and little attention has been given to the use of alternative models of service quality. Nimako et al (2012), in one such study, had proposed a framework

of latent factors that were critical for understanding the service quality in mobile telephony industry in Ghana. They modified the SERVQUAL model to fit the mobile telephony context and used EFA This research paper, herein, is an attempt to identify the service quality dimensions that are best suited to the service provided by the HEI's in Punjab state of India, as perceived by the post-graduate students.

The four emerged dimensions with thirty one items, being Faculty and Staff Behaviour, Tangibles, Delivery and Facilities could be used by the higher educational institutes as critical factors in evaluating their service quality. It is also concluded that alternative SQ models, like the one proposed in the paper (I-SERVQUAL), aside the popular SERVQUAL model could be useful in determining the SQ dimensions relevant to the HEI's. The results of the study have found out four major dimensions, which are necessary for maintaining a high level of service quality in HEI's. These are similar to the results of the earlier studies carried out by Palli & Mamilla (2012), Sproule (2000), Navarro et al. (2005) etc. Thus, as a major outcome, in context with the higher educational institutes in the country, this paper does provide an extensive block of thirty one items; split into four dimensions, for assessing the service quality of HEI's.

# 19 VII. Limitations of the Study

There are a number of limitations to this research. First, the constraint of our data collection, which has been gathered from only three universities of Punjab, limits the scope of validity and reliability of data beyond the specific circumstance that is the subject of our analysis. Second, the findings are limited to India and about Indian Higher Education System, so may not be generalizable to other forms of courses offered and/or in other countries. However, we do believe that the outcomes of this research can be applied to other countries and it will be helpful for those countries as well.

# 20 Global


Figure 1:

[1] [2]

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*[Note: dimension.Lehtinen & Lehtinen (1982) view service quality in terms of physical, corporate (image) and interactive quality. Physical quality refers to the tangible aspects of the service. Corporate quality refers to how current and potential customers, as well as the other public, views (image) the service provider. Interactive quality concerns the interactive nature of the service provider and refers to a two-way flow that occurs between service provider and the customer, or her/his representative, including both animated and automated interactions.Gronroos (2001) also presented, similar to what Lehtinen and]*

Figure 2:

**1**

| Year 2 Global Journal of Management and Business Research A Volume XIV Issue VIII Version I ( ) | Dimensions of Service Quality | | |
|---|---|---|---|
| | SERVQUAL | | I-SERVQUAL |
| Parameter | Meaning | Modified Parameter | Meaning |
| Faculty | Specialization/Expertise | Faculty | Quality of service provided by the faculty members of the university |
| Tangibles | Appearance/Physical facilities | Facilities | Availability of facilities for academic, Co and extra-curricular activities, sports etc., |

Figure 3: Table 1 :

**2**

| CODES | DIMENSIONAL ITEMS |
|---|---|
| V1 | University faculty shows interest to solve students' problems |
| V2 | University faculty is well qualified and knowledgeable |
| V3 | University faculty gives confidence and motivation to students. |
| V4 | |

Figure 4: Table 2 :

**3**

| Frequency | Percentage |
|---|---|

Figure 5: Table 3 :

**4**

: (a) Pattern Matrix

| Year | Factor | 1 | | 2 | | 3 | 4 |
|---|---|---|---|---|---|---|---|
| 2 44 | Cronbach's Alpha Item Loading | 0.95 | | 0.888 | | 0.925 | 0.841 |
| Global Journal of Management and Business Research A Volume XIV Issue VIII Version I ( ) ( ) | V44 V42 V43 V1 V37 V5 V4 V8 | 0.998 | 0.875 | 0.891 | 0.865 | 0.863 | |
| | V10 V9 V48 V3 V41 V39 V40 | 0.865 | 0.678 | 0.785 | 0.592 | 0.837 | |
| | V26 V28 V27 V29 V36 V30 V31 | 0.667 | 0.649 | 0.575 | 0.565 | 0.735 | |
| | V53 V54 V52 V55 V51 | 0.644 | 0.625 | 0.445 | | 0.729 | |
| | | 0.621 | 0.605 | | | 0.514 | |
| | | 0.602 | 0.600 | | | | |
| | | 0.569 | 0.556 | | | | |
| | | 0.474 | | | | | |
| | V50 | | | | | 0.454 | |
| | V14 | | | | | | 0.882 |
| | V13 | | | | | | 0.788 |
| | V15 | | | | | | 0.751 |
| | Extraction method: Maximum Likelihood. Rotation method: Promax with Kaiser Normaliz converged In 7 iterations | | | | | | |

Figure 6: Table 4

**4**

: (b) Factor Analysis
Structure Matrix

Figure 7: Table 4

**5**

| Emerged Factor | Items retained | New Dimension |
|---|---|---|
| 1 (15 items) | V44, V42, V43, V1, V37, V5, V4, V8, V10, V9, V48, V3, V41, V39, V40 | Faculty and Staff behaviour |
| 2 (7 items) | V26, V28, V27, V29, V36, V30, V31 | Tangibles |
| 3 (6 items) | V53, V54, V52, V55, V51, V50 | Delivery |
| 4 (3 items) | V14, V13, V15 | Facilities |

Figure 8: Table 5 :

**6**

| Chi-Square | df | Sig. | CMIN/Df | Recommended |
|---|---|---|---|---|
| 552.260 | 347 | .000 | 1.59 | Between 1 and 3 |

Figure 9: Table 6 :

**7**

| Factor Label | Cronbach's Alpha | Specification |
|---|---|---|
| Faculty and Staff behaviour | 0.950 | Reflective |
| Tangibles | 0.888 | Reflective |
| Delivery | 0.925 | Reflective |
| Facilities | 0.841 | Reflective |

Figure 10: Table 7 :

[Madison] , W I Madison . Magna Publications.

[Ensaio-Avaliacaõ E] , Ensaio-Avaliacaõ E . *Politicas Publicas em Educacaõ* 9 p. .

[ Product Operations Management] , *Product Operations Management* 17 (3) p. .

[Parasuraman et al. ()] 'A Conceptual Model of Service Quality and its Implications for Future Research'. A Parasuraman , Valerie A Zeithaml , Leonard L Berry . *Journal of Marketing* 1985. 49 p. .

[Doll et al. (1994)] *A Confirmatory Factor Analysis of the End-User Computing Satisfaction Instrument*, W J Doll , W D Xia , G ; Torkzadeh , Mis Quartely . 1994. December 1994. p. .

[Jarvis et al. (2003)] 'A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research'. C B Jarvis , S B Mackenzie , P Podsakoff . *Journal of Consumer Research* September 2003. (30) p. .

[Navarro et al. ()] 'A New Management Element of Universities: Satisfaction with the Courses Offered'. M M Navarro , M P Iglesias , P R Torres . *International Journal of Education Management* 2005. 19 p. .

[Soares De Mello et al. ()] *Avaliacaõ qualitativa e quantita-tiva: uma metodologia de integracaõ*, J C C B Soares De Mello , F R Leta , A J S Fernandes , M R Vaz , M H C Soares De Mello , M E R P Barbejat . 2001.

[Bollen ()] K A Bollen . *Structural Equation with Latent Variables*, (New York, NY) 1989. John Wiley & Sons.

[Nimako et al. ()] 'Confirmatory Factor Analysis of Service Quality Dimensions within Mobile Telephony Industry in Ghana'. S G Nimako , F K Azumah , F Donkor , V Adu-Brobbey . *Electronic Journal Information Systems Evaluation* 2012. 2012. (2) p. .

[Chadwick and Ward ()] *Determinants of Consumer Satisfaction with Education: Implications for College and University Administrators*, K Chadwick , J Ward . 1987. 62 p. . College and University

[Krejcie and Morgan ()] 'Determining Sample Size for Research Activities''. R V Krejcie , D W Morgan . *Educational & Psychological Measurement* 1970. 30 p. .

[April and Pather ()] 'Evaluating Service Quality Dimensions within e-Commerce SMEs'. G D April , S Pather . *Electronic Journal Information Systems Evaluation* 2008. 11 p. .

[Costello and Osborne ()] 'Exploratory Factor Analysis'. & Costello , Osborne . *Practical Assessment Research & Evaluation* 2005. 10 (72) .

[Comesky et al. ()] *Implementing Total Quality Management in Higher Education*, R Comesky , S Mccool , L Bymes , R Weber . 1991.

[Bruzelius and Skarvad ()] *Integrerad organisations lara*, L Bruzelius , P-H Skarvad . 2004. Lund. (Student litteratur)

[Chatfield and Collins ()] *Introduction to Multivariate Analysis*, C Chatfield , A J Collins . 1992. London: Chapman & Hall.

[Li et al. ()] 'Measuring Web-based Service quality'. Y N Li , K C Tan , M Xie . *Total Quality Management* 2002. 13 (5) p. .

[Hair et al. ()] *Multivariate Data Analysis*, J R Hair , W C Black , B J Babin , R E Anderson . 2010. New York: Macmillan Publishers. (7 th Edition)

[Astin ()] *Preventing Students from Dropping Out*, A Astin . 1975. San Francisco: Jossey Bass.

[Kline ()] *Principles and Practice of Structural Equation Modeling*, R B Kline . 2005. New York: Guilford. (2nd ed.)

[Bill (ed.) ()] *Quality by Design: Towards a Framework for Academic Quality Management*, D Bill . Smart, John (ed.) 1992. (Higher Education: Handbook for Theory and Research)

[Parasuraman et al. ()] 'Refinement and Reassessment of the SERVQUAL Scale'. A Parasuraman , L Berry , A Zeithaml . *Joumal of Retailing* 1991. 67 (4) p. .

[Saunders et al. ()] *Research Methods for Business Student*, M Saunders , P Lewis , A Thornhill . 2007. Pearson Education Limited. (th)

[Bemoski ()] *Restoring the Pillars of Higher Education' Quality Progress*, K Bemoski . 1991. p. .

[Lehtinen and Lehtinen ()] *Service Quality: A Study of Quality Dimensions'. Working Paper. Service Management Institute*, U Lehtinen , J R Lehtinen . 1982. Helsinki.

[Lovelock and Wirtz ()] *Services Marketing: People, Technology, Strategy*, C Lovelock , J Wirtz . 2007. New Jersey: Pearson Prentice Hall. (6 Edition)

[Parasuraman et al. ()] 'SERVQUAL: A Multiple Item Scale for Measuring Customer Perceptions of Service Quality'. A Parasuraman , V A Zeithaml , L L Berry . *Journal of Retailing* 1988. 64 p. .

[Brady and Cronin ()] 'Some New Thoughts on Conceptualizing Perceived Service Quality: A Hierarchical Approach'. M K Brady , J J CroninJr . *Journal of Marketing* 2001. 65 p. .

[Gronroos ()] 'Strategic Management and Marketing in the Service Sector'. C Gronroos . *Swedish School of Economics and Business Administration* 1982. US by Marketing Science Institute and in the UK by Studentlitteratur/ Chartwell-Bratt (published in 1983 in the)

[Sproule ()] *Student Evaluations of Teaching: A Methodological Critique of Conventional Practices'. Education Policy Analysis Archives*, R Sproule . 2000. 8 p. .

[Palli and Mamilla ()] 'Students' Opinions of Service Quality in the Field of Higher Education'. J G Palli , R Mamilla . *Creative Education* 2012. 3 (4) p. .

[Rastogi ()] 'Sustaining Enterprise Competitiveness -Is Human Capital the Answer'. P N Rastogi . *Human System Management* 2002. 19 (3) p. .

[Spohrer and Maglio ()] *The Emergence of Service Science: Toward Systematic Service Innovations to Accelerate Co-Creation of*, J Spohrer , P P Maglio . 2008.

[Grönroos ()] 'The Perceived Service Quality Concept -A Mistake'. C Grönroos . *Managing Service Quality*, 2001. 11 p. .

[Ewell (1993)] *Total Quality & Academic Practice. The Idea We've been Waiting for?' Change*, P Ewell . 1993. May-June 1993. p. .