

Managing Higher Education Quality Enhancement in Pakistan through Transparent Examination System

Amir Nadeem^{*}, Saima Batool[†] and Mohammad Asif[‡]

Abstract

The main objective of the current study in hand was to identify the significant role of proper and transparent examination system in enhancing the higher education quality in Pakistan. The primary data was collected through proper designed questionnaire having five point Likert scale from 1= strongly agree to 5=Strongly Disagree by 300 respondents including Administrator officer, Educationist and faculty members of fifteen universities including both public & Private universities situated at Peshawar, Islamabad and Punjab in Pakistan by using stratified random sampling technique. Keeping in mind the research questions/purpose, reliability and validity of the research instrument was checked and found correct. The collected data was analyzed with SPSS ver. 23 and applied various statistical techniques. The hypotheses and proposed conceptual frame work was tested through applying the structural equation modeling (SEM)/Amos technique for model fitting of the current research study. The results of the SEM show that the transparent examination system enhances the higher education quality. It was recommended that assessment process creates the critical thinking and knowledge.

Keywords: Quality education; Transparent Examination; Measurement Model; Path diagram; Structural Equation Model

Introduction

Today higher education is recognized as a capital investment and is of paramount importance for economic and social development of the country. Institutions of higher education have the main responsibility for equipping individuals with advanced knowledge and skills required for positions of responsibility in government, business and other professions. Only highly educated manpower can handle advanced technology. Thus,

^{*} Amir Nadeem, PhD Scholar, Department of Management Sciences, Qurtuba University of Science and Information Technology, Peshawar, Pakistan.

[†] Dr. Saima Batool, Associate Professor, Department of Management Sciences, Qurtuba University of Science and Information Technology, Peshawar, Pakistan. Email: dr.saimabatool90@yahoo.com

[‡] Mohammad Asif, PhD Scholar, Department of Management Sciences, Qurtuba University of Science and Information Technology, Peshawar, Pakistan.

without the participation of highly qualified manpower, the process of economic development is very difficult to be accelerated (Saeed, K. A. 2003).

According to the UNESCO, value of higher education is an idea of multi-dimensions that should accept all its activities and functions besides organizing its instructional and academic programmes along with research based training, staffing, students, housing amenities, equipment and services to the people as well as the educational atmosphere (UNESCO,1998).

The higher education focuses in the sustainable improvement and development of the style of delivering and imparting higher education. It is a fact that development of a method for a constant self-monitoring and improvement of the education system is the need of the hour (Saeed, Rafi, Ahmed, & Rauf, 2003).

Literature Review

Rana Sikandar, in 1995, described the importance of examination system in higher quality education. He suggested that when a certain amount of instructions is imparted to the learners, a stage comes when the teacher feels that he must take stock of the entire situation and survey the quality and quantity of progress made by his students. These tests enable him to judge whether or not the learners have grasped the substance of the material taught to them. The custom of employing some sort of examination is as old as education itself.

According to Sabarana (2009), an institution depends entirely for quality education on its planning and examination system as well as the resources and policies, which it follows. Undoubtedly, examination plays a vital role in quality education. It is an organized program for awarding degree/certificate. Rehmani, 2009, described that it is an undeniable fact that examinations are planned and conducted throughout the world. They are considered of much importance and significance and are supposed to have been playing a very important role in the enhancement of quality of education and also in deciding what is being taught by the teachers and what is being learnt by the students in the class room.

Examination are considered of much importance and significance and are supposed to have been playing a significant role in quality of education and also in deciding what is being taught by the teachers and what is being learnt by the students in the class room (Gipps,1994). Through examination system, we can achieve the required objectives, which would be helpful in the improvement of the processes of quality teaching and learning and also creates confidence and logical approach of the students (Rehmani, 2003).

According to the researches if the assessment process is conducted to enhance critical approach and understanding, then a student would not only enhance/improve his knowledge but will also achieve deep learning, which will enable him to perform a crucial role in the improvement of quality education (Entwistle, Marton Dalla'Alba, & Beaty, 1993). Evaluation and assessment should be the integral part of the educational programmes. Niklasson (1998) has very well explained and explored the ground for the internal assessments of different educational activities performed role of back bone in the quality education. .

According to World Bank Report, the Pakistani universities are working like Postgraduate institution/colleges and only focusing on examination oriented teaching. Yet enhancing the quality of teaching is at the lowly ebb tide. Similarly, Pakistani degrees are not recognized in other countries. According to World Bank Report using international standards, the degrees of Pakistani Universities, M.A/M.Sc could soon come to the equivalent of secondary school diploma in other countries (Naveed Sultana, 2009). Besides almost 163 universities/awarding institute in Pakistan but no one can get place in the top 500 universities of the world (Universities, 2015).The main objective of the author was to identify that examination system enhances the higher education quality . The basic aim of this study was that the research report having recommendations on the basis of results, would be help education departments, policy makers and the Higher Education Commission to improve effective higher quality education in Public & private institutions.

Objectives of the Research Study

The main Objectives of the Research study are:

- 1.To identify the significant importance of transparent examination system in enhancing the higher Quality Education in Pakistan.
- 2.To explore the structural relationship between dependent and independent variable
- 3.To propose some guidelines to improve the higher Education Quality through examination

Research Methodology

In order to obtain the required objective, the primary data was collected by the respondents i.e. educationists, university administrators and the faculty members, a well structured questionnaire was used. To check the reliability of the questionnaire, a pilot study was conducted and 20 questionnaire were distributed among the relevant experts in the

university. The results of pilot study showed the value of cronbach alpha statistics was 84.6%, indicating the data collection instrument as reliable and the items in questionnaire found valid for measuring the required factor. All the items of the research questionnaire were measured on 5 point Likert scales ranging from strongly disagree to strongly agree. The current research study followed all the guidelines to design the proper Questionnaire (Frazer, Lawley and Sekaran, 2000).

Sample and sampling Technique

To select a representative sample from various Public and Private Universities stratified random sampling technique was used. The proportional allocation method of sample selecting from each university of various provinces was used. The table 1 indicates the breakup of sample size from universities of each selected province.

Table 1 Sampling

Province	Universities	Proportional Allocation
Khyber Pukhutunkhwa	41	$41 * 15 / 129 = 4.76$
Islamabad	22	$22 * 15 / 129 = 2.55$
Punjab	66	$66 * 15 / 129 = 7.6$
Total (KP+Isbd+Punjab)	129	15

The sample of 15 universities was selected by stratified random sampling approach. Further, the bifurcation of sample in three groups i.e. (KP, Islamabad, Punjab) was done by proportionality. The above table indicates that a sample of 15 universities was selected. 5 universities from Khyber Pukhtunkhwa , 3 universities from Islamabad and 7 universities from Punjab provinces. Twenty research questionnaires were filled up by the respondents from each university.

The data was analyzed by SPSS v. 23 with the help of structural equation modeling (SEM)/Amos technique for model fitting, testing the hypotheses and proposed theoretical relationship in the current research study.

Data Analysis & Discussion

Pilot Study:

The pilot study was conducted and 20 questionnaires were distributed among the relevant and expert respondents in the different institution/universities of KP to check the reliability and validity of the questionnaire, but the respondent who have taken part in pilot study were not involved in main study (Haralambos & Holborn, 2000).

Table 2 Reliability measures and total variance explained by each Factor

Factors	# of Item	Cronbach α	EFA No. of factor	KMO	Bartlett's test	Var. Explained
E.S	4	.723	1	.645	.000	58.320
Q.E	3	.681	1	.612	.000	62.978

Table 3 Mann-Whitney-U-test Results between (1-3) and (5-6) questions

	Q#1	Q# 2	Q# 3	Q# 5	Q# 6	Q# 7
Mann-Whitney U	1.000	2.100	2.300	2.500	1.500	.523
Wilcoxon W	11.000	10.000	12.000	10.000	112000	11.500
Z	-1.395	-1.218	-.759	-1.218	-1.326	-1.550
p-value	.263	.214	.413	.244	.130	.070

Main Survey Study:

Missing Data and its Treatment.

The data missing is most serious issue in analysis part so, the required results show no missing value in the data (Tabachnick and Fidel; 2007).

Table 4 Univariate Statistics

	N	Mean	Std. Dev	Missing		No. of Extremes ^a	
				Count	Percent	Low	High
A1	300	3.50	1.072	0	.0	18	0
A2	300	3.40	.944	0	.0	8	0
A3	300	3.50	.913	0	.0	4	0
A4	300	3.60	.964	0	.0	9	0
G1	300	4.49	.620	0	.0	.	.
G2	300	4.22	.650	0	.0	4	0
G3	300	4.45	.745	0	.0	10	0
Designation	300			0	.0		

a. Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

Outliers Examination.

Due to outlier, non normality of data and error in results is obtained (Kline, 2005; Hair, 2006, Tabachnick, 2007). In the current research study, no univariate outlier exist. The result is indicated by Box Plot method.

Table 5 Descriptive Statistics of Z-scores

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Dev
Zscore: A1	300	-2.423452	1.30545	7	1.000
Zscore: A2	300	-2.57452	1.56615	7	1.000
Zscore: A3	300	-2.84485	1.52836	7	1.000

Zscore: A4	300	-2.74123	1.39158	7	1.000
Zscore: G1	300	-3.32412	1.45589	7	1.000
Zscore: G2	300	-3.214452	1.32769	7	1.000
Zscore: G3	300	-3.972692	1.27645	7	1.000
Valid N (listwise)	300				

Table 6 Multivariate outlier Detection

S. #	Factor	No. of Outlier	Observation Number
1.	E.S	7	116,151,144,253,216,223,194
2.	QE	17	290,93,125,211,136,119,153,124,186,165,273, 214,219,276,270,225, 228

Normality.

By the help of simple Q-Q plot we can examine the normality of the dat. The observed and latent value has been shown in the diagram which shows normally distribution (Field, 2009). The multivariate normality confirmed by PP plot (Appendix A).

Homoscedasticity

Levene's test is most familiar method for investigating of homoscedasticity (Hair, 2006; Field, 2006; Pallant, 2007). In the present study, the aforesaid test for metric variables was calculated by way of non-metric variable as part of t-test. All the values I the mentioned table lie in the acceptance range.

Table 7 "Levene's test "Homogeneity of Variance

	Levene Statistic	df1	df2	Sig.
E.S	.652	1	298	.310
QE	2.613	1	298	.214

Multicollinearity

When three or more than three independent variables are correlated then multicollinearity is determined by Computing the bivariate correlation matrix and (VIF) or tolerance effect (Tabachnick & Fidel, 2007; Hair et al., 2006). There is no multicollinearity sign in the given table.

Table 8 Bivariate Correlations

	E.S	Q.E
E.S	1	
Q.E	.114	1

Table 9 Collinearity Statistics

Factors	Collinearity Statistics	
	Tolerance	VIF
E.S	1.000	1.000

a. Dependent Variable: SumG

Non- Response Biasness

To find out the non-response biasness i.e the first three and the last three questions of the instrument assessed by using the Mann-Whitney U-test technique. The table indicates no value is lesser than $P > 0.05$ or even equal. It means non-response does not create any issue in the research (Armstrong & Overton, 1977).

Table 10 Non Response Biasness

Test	A1	A2	A3	G1	G2	G3
Mann-Whitney U	1945.50	2045.50	2336.00	2212.50	2136.50	2145.00
Wilcoxon W	7223.50	7312.50	3314.00	3285.50	7515.50	3114.00
Z value	-1.654	-1.267	-.019	-.4540	-.668	-.913
P value, Sig. (2-tailed)	.076	.191	.967	.663	.465	.346

Table 11 Demographic/Profile of the Respondents

		Frequency	Percent
Gender	Male	217	72.3
	Female	83	27.7
Academic Qualification	Master	45	15.0
	M.Phil./ Ph.D scholars	103	34.3
	Ph.D.	152	50.7
Designation	Faculty member	144	48.0
	Administrator	97	32.3
	Educationist	59	19.7
Age	25—35	69	23.0
	36—45	106	35.3
	46—55	83	27.7
	56 and above	42	14.0
Total sample		300	100.0

Reliability and Validity

By the help of SPSS technique, Reliability, validity and item correlation were calculated and also applied Cronbach's α , method. All the values lies in the acceptance region as mentioned in the table (Hair, 2006; Churchill, 1979).

Table 12 Reliability Measures

Factors	Items	Cranach's α
E.S	4	.765
Q.E	3	.656

E.S = Examination System; Q.E= Quality Education

Factor Analysis:

Such technique may be applied in two forms on the data. EFA is to assess the variation explained by the role of observed variables for a factor and CFA is to verify the already mentioned factors, involved in theoretical model (Tabachnick & Fidel, 2007).

To obtain suitable results of factor analysis, by calculation of "KMO test" and "Bartlett's test" so, we can find the results of factor analysis (Norusis, 1992). The value of KMO is $> .6$, so it means that correlation among items is significant (Fidel, 2007). While the "Bartlett's test value is $> .3$ which explains appropriate for EFA (Hair, 2006).

Table 13 Factor analysis

Factors	Items	Cronbach's α	(EFA)	KMO value	Bartlett's Test's	Vari Explain
E.S	4	.758	1	.690	.000	56.833
QE	3	.675	1	.752	.000	59.943

The table shows all values of KMO & Bartlett's test are $< .05$ i.e. ($P < .05$), which is significant acceptable (Kaiser, 1974; Bartlett, 1954) and value of Cranach's α are also lie in acceptance range.

Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a multivariate method used for estimation of relationship among interrelated unobserved variables simultaneously. The model under consideration is observed and by the help of this technique we can tested the coefficients of observed and latent variables, such that it becomes consistent with data. According to author, there are two types of model in SEM i.e. 1) Measurement model. 2) Structural model (Geffen et al., 2000). The first one we may define as, the correlation between observed variable and unobserved variables is called as measurement model. The specified model ensures the relation between scores on underlying factors as well observed indicator variables, which are planned to measure. The same model indicates CFA (Confirmatory Factor Analysis). It indicates the model through which every measure weights on a specific factor. It neither describes the relationship among factors but also focuses on validation of the model. It

shows that how measured variables get together to explain factors and also utilized to checks reliability and validity. Similarly, when the relationship exists between latent variables is called as structural model. Structural model identifies the directly or indirectly effect of certain unobserved variables with other unobserved variables.

Validation of the Measurement Model: Psychometric Checks

A Confirmatory Factor Analysis (CFA) was obtained, utilizing AMOS of the 23-version. The Validity of measurement model depends on acceptable levels of goodness of fit for the specified model and determines the factor validity. Validity is described as accurately measured the data collection methods at some extent what they were intended to measure (Saunders & Thorn hill, 2003). To explain the validity process, so by the help of following we can obtain the validity and reliability checks: 1. Content validity 2. Construct Reliability 3. Convergent validity 4. Discriminant validity.

The content validity and factor reliability have already calculated by applying Cronbach's α technique. Convergent validity is presented at the time when every measurement question strongly correlates with its assumed theoretical factor. It means that a question which indicates a factor shows high proportion of variance in common. The value ranges between zero and one (0 – 1). The value 0.7 is known as ideal value whereas acceptable value is 0.6 is considered (Barclay et al., 1995). The standard factor loading of the factor questions of the measurement model has been given in table.14

Table 14 Standardized Factor Loadings of factors Items

Item	Standardized factor loadings (β)
Examination System	
• ES is the benchmarks for enhancing the QE.	.659
• Examination process creates confidence and logical approach	.711
• Examination creates critical approach and analytical thinking	.545
• Examination improves individual's knowledge and skills	.694
Quality Education	
• Good leadership & management can enhance the QE	.660
• M & E perform significant role in enhancing QE	.775
• Resources and policies can enhance overall QE at H E	.542

By applying t- test, the convergent validity was verified for each factor loading and all are found significant i.e. $p < 0.05$. The table indicates

factor loading and having value above .60, but few of them are closer to .60.

The Measurement Model

The proposed model consists of 2 factors. Each factor is measured at least 3 to 4 observed variables. The reliability of which is influenced by random measurement error, as indicated by the associated error term. The factors are measured by the help of observed variables. There are total 2 factors and inter-correlated.

Model Identification

In SEM has three different types of structural model i.e Just Identified, over identified and under-identified. The just identified is defined as if the relation between data and structural parameter is 1-1. The under-identified model is defined as when the number of variance and co-variance does not exceed as compared to number of estimated parameter. A model which has number of assessed parameter is less than the number of variance and co-variance of the data is called as over identified model. The over identified model is proposed for the current research study having value of degree of freedom is 13 as shown in the table drawn from the AMOS output.

Table 15 AMOS Results: Computation of degrees of freedom

Nos. of distinct sample moments	28
Nos. of distinct parameters to be estimated	15
Degrees of freedom (df) (28 - 15)	13

In the research study, the model has 28 distinct parameters which are needed to estimate with 13 degree of freedom, so value is >0, which is positive and model is over identified.

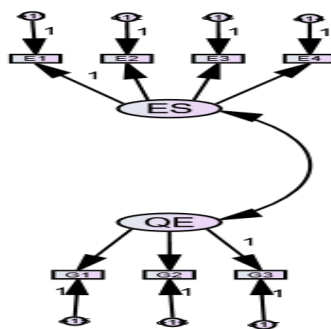


Figure 1 Confirmatory Factor Analysis

Model Evaluation Criteria: Goodness of Fit

The main purpose in SEM is to fit the data on a hypothesized model, or verify if there is any deficiency in the model. It can be tested through several criteria. In the given table different commonly used model fit measures in the study (Hu and Bentler, 1999).

Table 16 Fit statistics of the measurement model

Fit Statistic	Obtained value	Recommended value
χ^2 (chi-square)	23.397	---
Df	13	---
χ^2 significance	0.037	p<0.05
χ^2 / df	1.79	< 5.0
GFI	0.977	Closer to one
AGFI	0.950	
NFI	0.890	
RFI	0.822	
CFI	.946	
TLI	.912	
RMSEA	.052	Closer to zero
RMR	0.040	

So, in the model fitting, the following values are as, Goodness of Fit index (GFI), obtained is **0.977**, “Adjusted Goodness of Fit Index” (AGFI) is **0.950**, whereas the Normed fit Index (NFI); Relative Fit index (RFI); Comparative Fit index (CFI); and Tucker Lewis Index (TLI); values are 0.890, 0.822, .946, .912 respectively are also an indication of good fit. Root Mean Square Error Absolute “(RMSEA)” is 0.052 and lies in the recommended value range, and Root Mean Square Residual (RMR) is also showing good model fit. So, the specified model is an over identified model.

The Structural Model Path Diagram

The structural model shown in the Figure 2, indicates the hypotheses of the study. We explain the structural model path diagram before explaining the results. The figure shows that 02 latent factors and total 07 observed variables which reflects their respective underlying latent variables. With each indicator variable, there is an error term, which is denoted by E1,

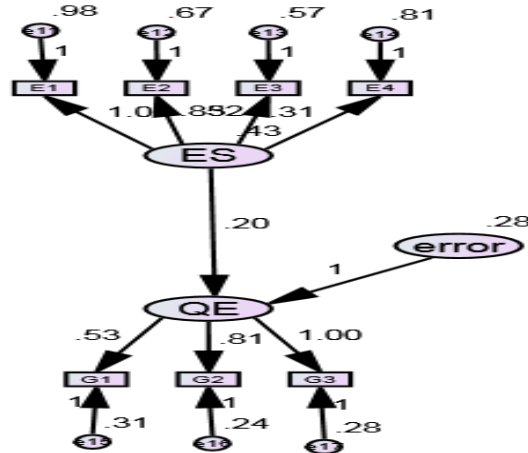


Figure 2 Structural Equation Model (Unstandardized estimates)

Assessing Structural Model Fitness

The same methodology was taken up for calculating the structural model’s validity. Therefore on the basis of GOF” and other indices evaluating the structural model fit. The table shows GOF fit indicates with its recommended values.

Table 17 Fit statistics of the measurement model

Fit Statistic	Obtained value	Recommended value
χ^2 (chi-square)	23.397	---
Df	13	---
χ^2 significance	0.037	p<0.05
χ^2 / Df	1.79	< 5
GFI	0.977	Closer to one
AGFI	0.950	
NFI	0.890	
RFI	0.822	
CFI	.946	
TLI	.912	
RMSEA	.052	Closer to zero
RMR	0.040	

The “model fit indices” also present a reasonable model fit for the structural model. “Goodness of Fit index (GFI)” obtained is 0.977. The Adjusted Goodness of Fit Index “(AGFI)” is 0.950. The Normed fit Index “(NFI)”, Relative Fit index “(RFI)”, Comparative Fit index “(CFI)”, Tucker Lewis Index “(TLI)” are also so closer to one. Hence it is better to refine the model by considering Modification Indices.

Testing Structural Relationships

The analysis results show that the hypothesized model revealed good fit with fitted data. The analysis also pointed out the path estimates in the structural model and variance explained (value) in each dependent variable. The results show that all the six hypothesized paths are significant (P value <0.05), and hence supported. The standardized regression weights of the hypothesized model and the results of their associated hypotheses, providing support for hypotheses H1 is presented in table 16.

Table 18 Standardized Regression Estimates of the Hypotheses

No.	Hypothesis	Standardized path coefficients	Hypothesis Rejected/not rejected
1.	E.S has a significant influence on QE at HE	0.086	Not rejected

Finally, it is concluded that the proposed theoretical model has been established and it gives us a good understanding of underlying factors (E.S) that influence quality of higher education. From the proposed model, it is revealed that Examination system is significant factor and it is significant contributing in the enhancement of Quality of Higher Education. So, the policy makers should pay more attention in developing the transparent examination system.

Discussion and Conclusion

In the current research study, the main purpose was to identify the factor examination system that greatly enhanced the quality of the higher education. The finding reflects that above factor can manage the higher education quality in Pakistan. The model was valid and fit to the empirical data on the basis of various acceptable values i.e. Chi-square = 23.397, df = 13, P= .037, (GFI) obtained is 0.977, RMSEA = .052, AGFI is 0.950, NFI, RFI, CFI, TLI are also not so closer to one. Therefore it is better to treat the model by considering Modification Indices.

In the research study, the proposed theoretical model has been established and it gives us a good understanding of underlying factors that influence quality of higher education. Further, the finding shows that examination is directly related with Q.E and perform significant role in the model. The main purpose of examination is to enhance teaching and learning processes effectively (Gipps, 1994). It enhances logical thinking and analytical thinking of the students (Sabarana, 2009). Through

examination system, we can achieve the required objectives, which would be helpful in the improvement of the processes of teaching and learning and also creates confidence and logical approach of the students (Rehmani, 2003). The author described in his research study the importance of examination system in higher quality education (Rana Sikandar,1995). This model is also supported by other researchers (Noman, 2013, Thaung, 2008).

Recommendations

On the basis of analysis and results, the author suggested some recommendations for enhancing the quality education in Pakistan through examination system;

- To adopt proper examination reforms in both public and private recognized institutions for improving transparent examination system.
- Students can improve their performance through transparent examination & assessment activities. In this regard, Proper steps to be taken to achieve the subject goal.
- The examination system creates confidence and logical approach of the students which enables them to achieve the international opportunities
- students may enhance clear concept, creative and analytical skills through examinations which reflects the quality education

References

- Armstrong, J.S. & Overton, T.S. (1977). Estimating Non-response Bias in Mail Surveys, *Journal of Marketing Research*, vol. 14, no. August, pp. 396-402
- Barclay, D., Higgins, C.A. & Thompson, R.L. (1995). The Partial Least Squares (PLS) Approach to Causal Modeling: Personal Computer Adoption and Use as an Illustration, *Technology Studies*, vol. 2, no. 2, pp. 285-309.
- Churchill, G.A. (1979). A Paradigm for Developing Better Measures of Marketing Constructs, *Journal of Marketing Research*, 16(01), pp. 64-73.
- Entwistle, N., & Tait, H. (1993, April). TITLE Approaches to Studying and Preferences for Teaching in Higher Education: Implications for Student. In *Paper presented at the AERA Annual Meeting*.
- Field, A. (2009). *Discovering Statistics using SPSS*, 3rd edn, Sage, London
- Gefen, D., Straub, D., & Boudreau, M. C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the association for information systems*, 4(1), 7.
- Gipps, C. (1994). *Beyond Testing: towards a theory of educational assessment*, Lewes Falmer Press (reprinted 1998).
- Hair Joseph (2006) *Multivariate Data Analysis*, 6th edn, Pearson Prentice Hall, Pearson Education, Inc., Upper Saddle River, New Jersey 07458.
- Haralambos, M. & Holborn, M. (2000) *Sociology: Themes and Perspectives* Harper Collins Publishers, Hammersmith, London.
- Joreskog, G. & Sorbom, D. (2001). *LISREL 8: User's reference guide*, Scientific software international Inc., Lincolnwood, IL.
- Kaiser, H.F. (1974). An Index of Factorial Simplicity, *Psychometrika*, 39, pp. 31-36.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. 2nd The Guilford Press. New York.
- Marton, F., Dall'Alba, G., & Beaty, E. (1993). Conceptions of learning. *International journal of educational research*, 19, 277.
- Sultana, N., Yousuf, M. I., Ud Din, M. N., & Rehman, S. (2009). The Higher the Quality of Teaching the Higher the Quality of Education. *Contemporary Issues in Education Research*, 2(3), 59-64.
- Hu, L. t. and P. M. Bentler (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal* 6(1): 1-55.

- Niklasson, L. A cultural revolution in the universities: The possible uses of rational choice models evaluation, 4 (3), 278–293 (1998)
- Norusis, M.J. (1992) SPSS for Windows: Professional statistics, SPSS Inc., Chicago: IL.
- Pallant, J. (2007) SPSS Survival Manual: step-by-step guide to data analysis, 3rd edn, Allen & Unwin, Australia.
- Rehmani, A. A. (2000). *Transmitting a Curriculum in Translation: A Case Study of an International Religious Education and Cultural Studies Curriculum, Ta'lim in the Context of Urban and Rural Areas of Sindh, Pakistan* (Doctoral dissertation, Institute of Education University of London).
- Saeed, K. A. (2003). *Quality in higher education and universities*. Paper presented at National Conference on Quality Assurance in Education in Pakistan. Pakistan Institute of Quality Control Lahore
- Saba Rana (2009) *Quality management in Higher Education: A perspective Proceedings 2nd CBRC, Lahore, Pakistan November 14, 2009*
- Saunders, M., Lewis, P. & Thornhill, A. (2007) *Research methods for business students* 4th edn, Prentice Hall, London.
- Tabachnick, B.G. & Fidell, L.S. (2007) *Using Multivariate Statistics*, 5th edn, Allyn and Bacon, Boston.
- UNESCO. (1998). *Higher Education in the Twenty-First Century Vision and Action*, Paris. Pp. 35-42.

Appendix-A Q-Q and PP Plots

