GSE Journal of Education 2013
Emerging Trends for Sustainability
in Glocal Education: Opportunities and Challenges
ISSN: 2289-3970

The Secretariat would like to express their heartfelt appreciation for the contributions made by the authors, co-authors, reviewers and all who involved in the publication of this journal.

Reviewers

Editors
Dr. Mokmin Basri, Khirulnizam Abd Rahman, Mohd Sofuan Mohd Salleh,
Noratiqah Salleh and Shafik Shahrol

ISSN: 2289-3970

Published by
WorldConferences.net
Koperasi KOKISDAR
Kolej Universiti Islam Antarabangsa Selangor
Bandar Seri Putra, 43600 Kajang, Selangor, MALAYSIA
Tel: +6019-347-2420 E-mail: wconferences@gmail.com

CONTENT

PRELIMINARY FINDING OF PSYCHOMETRIC PROPERTIES OF THE EXISTING QUALITY ASSURANCE EVALUATION MODEL (QAEM) FOR NATIONAL UNIVERSITIES COMMISSION (NUC) OF THE FEDERAL REPUBLIC OF NIGERIA

Bojuwon Yusuf Bolaji[1]
Institute of Education,
International Islamic University Malaysia.
bojuwon 2003@yahoo.com
Hairuddin Bin Mohds Ali[2]
Institute of Education,
International Islamic University Malaysia.
hairuddin@iiu.edu.my

Abstract

The measure of quality assurance evaluation plays a vital role in quality enhancement determinations, precisely in university educational institutions. Recently, Nigeria Government had to embark on laudable policy programmes that will enhance the quality of university educational institutions. But to fulfill this responsibility, is frequently thwarted by long-standing challenges of access, inadequate funding, facilities, governance, curriculum problem, human resource and technology input. The challenges face by university educational institutions have led to a rigorous quest for this research. The drive of this research was accompanied to test and evaluate its psychometric properties of the existing QAEM Input process (IP) NUC accreditation instruments and as well to examine the dimensionality, reliability and construct's validity using a confirmatory factor's analysis approach) of QAEM instruments in order to enhance the quality of evaluation of the nation's university education system.

To this end, the research employs a cross-sectional survey data approach collected from the survey of 16 universities. Data has been collected using the personal contact approach suggested by Sureshchandar et al., (2004). A total of 1600 survey/questionnaires were distributed and data has been collected from sixteen universities, which represent one thousand six hundred (1600) respondents. This is in line with the guideline for sample size decisions as proposed by Krejcie and Morgan, (1970). The respondents cutting across all spheres of the university community which includes vice-chancellors (university administrators), management teams, NUC staff, Teaching staff and non- teaching staff, director/deans/HODs and students in the North Central Geo- Political Zone of Nigeria. Nevertheless, these preliminary reports employed quota sampling technique for selecting survey participants. Factor extracted was achieved using an Exploratory Factor Analysis (EFA), Principal Component Analysis (PCA)(using SPSS 18.0) and measurement model of confirmatory factor analysis (CFA) techniques was performed to extract the fundamental factors, to check for factorial validity of the dimensional constructs and to screen the instruments into appropriate QAEM dimensions(though Structural Equation modeling (SEM) using AMOS 18.0.

The findings of this research revealed that all the determinants of the dimensional constructs for the input process, proposed fulfilled the standard for measuring quality services in university educational institutions. It was found that the compound reliability, internal consistency of input process survey instruments evaluated through coefficient alpha and validity constantly deemed to be important is above the lower recommended limit of 0.7 Nunnally, (1978) which shows that input process survey instruments are internally consistent and reliable. Considering the overall model fit indices, the equations that describe the model fit characterize the information well. Hence the remaining fit- Indices show that they are

within the tolerable threshold range.

Field of Research: Quality, NUC, MAS, QAEM and IP.

1. Introduction

Nigeria geographical sovereignty is situated on the western coast of Africa and lies between latitude 40 and 140 north and between longitudes 30 and 150 East. The surface area of Nigeria spans over about 923764 km2 with Benin to the south along the Gulf of Guinea, Niger and Chad to the North and Cameroon to the East. Nigeria is blessed with a large territory; diverse natural resources and agricultural space; an overwhelming estimated population over 167 million people, with cultural diversity. The system of administration throughout the country is divided into three tiers of governments (Federal, State and Local) thus the geo- political area is divided into six (6) zones (North-central, North-east, North - west, South-east, South-west and South-south). These zones consist of 36 states and 774 local government areas with a population of 167 million as in 2008. As a British Colony up until 1960, the system of Education in Nigeria could not but derive from the British system. Even the curriculum was British, and it was only on the eve of independence that people began to question the relevance of the existing curriculum to a Nigerian environment. However, the implication was that Nigeria school children were not being educated to meet the needs of the Nigeria nation. Consequently, the Federal Government- through the then Nigerian Educational Research Council now Nigerian Educational Research and Development Council NERDC- convenience a meeting of a national curriculum conference in 1969 in Lagos. Thus, eminent of Nigeria's scholar were invited to present papers on the type of education they wish for the country.

Consequently, there were several attempts at making the curriculum relevant - attempts which culminated in the National Curriculum Conference of 1969. The Federal Government set up a Committee in 1973 to study the recommendations of that conference. Government's views on the reports to the committee on White Paper entitled "National Policy on Education, the outcome of the conference which provided the conceptual and doctrinal framework on which to build a true great Nigeria metamorphosed in the publication of the National Policy on Education (NPE) of the Federal Republic of Nigeria was launched in (1977); and revised in 1981, 1998 and 2004. Restructuring in recent years in higher-education institutions have been felt. Educational sector has been at the top of the main concern lists of some previous Nigerian governments. Nevertheless, the educational system is at a standstill, which is far from being equipped for the challenges of the economic forces resulting from development of global education system and also the pressure from the rapid technological change (Panagiostic.T, Dimitra. D. 2009). However, Nigeria is not the only country whose education system is unprepared. A closer examination of many systems, especially in a developing context, indicate that most of the educational systems in developing countries are not yet geared up to prepare students for the modern universal world. The education needs of an emergent Nigerian should be manifested by a continuous look for excellence support by the political will for good governances and transparency (Pai Obanya 1999). Apparently, Higher Education institutions (HEIs) in Nigeria are now seeking more valuable systems to address the increasing dissatisfaction over the performance of university education systems and the stakeholder pressure on the quality of the product and the need for accountability and transparency in Nigerian university educational System (NUES).

The major thrust of this proposed research of the existing QAEM input process (IP) for NUC accreditation survey instruments that will enhance the trend in quality assurance in the Nigerian universities through the NUC accreditation standard and forecast the future through the process. As a result, QAEM for NUC accreditation been the central premise of this research was accompanied to test and evaluate its psychometric properties of the existing

QAEM Input process (IP) NUC accreditation instruments and as well to examine the dimensionality, reliability and construct's validity using a confirmatory factor's analysis approach which basically, a tag for the procedure of ensuring fitness for purpose of the existing minimum academic standard (MAS) criteria by NUC and the alternative criteria.
Therefore, giant strides have been made in improving access in higher education in Nigeria since independence, from two (2) Universities, in 1960 to 117 universities in 2010. At the end of 2010, the numbers of universities in Nigerian were not less than 110 with 6 newly approved, one in each zone in November, 2010. In January 2011, additional three universities were approved by the FEM. The achievements recorded by NUC included expansion of access, streamlining of affiliations, entrenching entrepreneurial education in NUS, quality assurance and monitoring activities. The NUES currently had 125 universities comprising 38 federal universities, 38 state universities and 50 private universities and three Inter-University Centres (IUCs) (Okojie 20011)

The NUC was created by Decree No. 1. 1974. It provides that the channel of communication of the National Universities Commission with the Federal Government will be through the Federal Minister for Education. Thus, the NUC is the agent of the Federal Government for coordinating, financing and the over-all development of the Universities. The Commission is answerable to the Federal Government on the total and individual performances of the Universities. It is the main channel for Federal funds for university education throughout the country. The NUC also ensures the orderly development of university education, the maintenance of high standard and avoidance of unnecessary and wasteful duplication of academic programmes, faculties and facilities. However, each institution is responsible for the academic standards and the quality of its programmes that are in line with these standard set up by the NUC which is an autonomous regulatory body established by law with major responsibility for quality assurance (Okebukola, 2002, 2006, 2009; Uva, 2005).

Subsequently, in its bid to comply with the provisions of the Act, the NUC through the use of experts from the universities was mandated to draw up minimum academic standards for all disciplines taught in Nigerian Universities. In order to assure the quality of education, various factors can be analyzed and assessed in an institution. It has been found that several efforts have been made to devise and develop assessment programmes for the accreditation of courses. However, most of these developments focus on the accreditation requirements of the NUC for education programmes in Nigeria. The guidelines given for the NUC Accreditation policy and Procedure Manual also recommend that these three steps, Self-assessment of an institution; Peer review and visits; Evaluation and reports be carried out for a quality assurance evaluation during the 2003 -2008 accreditation cycle. On this note, this study will try to validate and check the psychometrics properties of the evaluation instruments.

2. RELATED LITERATURE APPLICABLE TO THE EXISTING QAEM (IP) CONSTRUCTS FOR NUC

There has been an excellent deal on previous research into the area under discussion of the quality assurance measurement model in higher education, with well-recognized contribution's various models from the UK, Australia, Spain, Germany, France, Norway, Canada and the USA. There are a variety of theories and models proposed to help the higher-education policy body to improve the quality assurance evaluation of educational institutions. During the mid-1990s, HEIs started implementing model base on quality management awards systems, or models created specifically for self- assessment in HEIs.

As regards, the standardized quality models, according to the quality awards, such as socio-political, organizational, pedagogical and business models projected by scholars: Political and power models (Ball, 1985; Brennan et al., 1997; Clark, 1983); collegial and managerial prudence, facilitative and bureaucratic rationality, formal, objectivity, ambiguity,

and cultural (Zavelys, 2005; Bush, 1995); pedagogical models by (Srikanthan and Dalrymple, 2002); categorized as the transformative model (Harvey, 2004; Harvey and Knight, 1996); engagement model (Corwin, 1997); responsive university (Tierney, 1998), social practice theory (Lave and Wenger, 1990; Vygotsky, 1978) and organizational learning (Senge, 1990); Models of business organization or total quality management (TQM), Deming, ISO, the Malcolm Baldrige Criteria for Performance Excellence; European Excellence Model (EFQM)). ISO in Europe, Australia and USA; Deming Prize in Japan (Kumar, 2007); Malcolm Baldrige Quality Award in the USA(Kumar, 2007); the EFQM model in Europe (Conti, 2007); EFQM, (2003) in support of illustration, the EFQM methodology as a foundation for self-assessment is quickly emerging in the UK education sector (Osseo-Asare and Longbottom, 2002). Others like, SERVQUAL models Brochado, (2009) compares the main alternative instruments to measure service quality in higher education: SERVQUAL (Parasuraman et al., 1988), (SERVPERF) (Cronin and Taylor, (1992), weighted SERVQUAL (Parasuraman et al., 1991), weighted SERVPERF (Cronin and Taylor, 1992) and (HEdPERF) scale (Firdaus, 2006), concluded that SERVPERF and HEdPERF present the best measurement potential. Therefore, abundant scholastic studies have been developed for measuring quality organization applicable to both industrial and service organizations (Educational institution)(Saraph et al., 1989; Flynn et al., 1994; Balzarova, M. A., Bamber, C. J., McCambridge, S. and Sharp, J. M. 2004, Black and Porter, 1995; Ahire et al., 1996; Conca et al., 2004). In relation to the procedure of models fashioned for academia, HEIs may also employ additional models such as: the European Quality Improvement System (EQUIS) accreditation and the Malcolm Baldrige Criteria for Performance Excellence for Education which comprised seven factors criteria that cover the sweep of organizational activities

It is worth analyzing those studies which have developed empirically validated instruments for quality measurement in HEIs (Owlia and Aspinwall, 1998); conversely, for the measurement of administrative quality in universities (Waugh, 2002). Srikanthan and Dalrymple, (2002) provides an account of the quality management models functional to higher education, frequently without much success, and recommended a holistic model embodying an managerial culture of learning within the university. Hence, administrative services in public HEIs can apply quality techniques, as in banking or travel (Srikanthan and Dalrymple, 2007). Moreover, Tulsi, (2001) found that applying TQM in HEIs is fundamentally aiming at s improving the quality of courses, input instructional process, resource management processes and structures; students support service output and linkages with the world of work and other organizations; Mustafa, S. T., and Chiang, D. (2006), Lagrosen et al., (2004); Venkatraman, (2007) in education emphasized on customer satisfaction and continuous improvement, which are based on interest in the core actions (e.g. teaching and learning methodology, curriculum revision and resource development) of the university, while improving the overall quality of its processes (e.g. continuous improvement, student academic growth and enhancement of institution's reputation) in order to achieve sustainable institutional outcomes and stakeholders' satisfaction. Assessment facilitates learning about quality management and thus exercise improved their understanding about quality-related issues (Svensson and Klefsjo, 2000; Balbastre et al., 2005).The The research findings by Cheng, (1996); Cheng and Tam, (1996) in Yin Cheng (2003), identify eight models of education quality that can be used to understand and manage quality assurance of education on the model of internal quality assurance from which it shared to the educational institutions and the environment it located.

Many authors affirm that quality assurance of the input process in HEIs had a negative attitude towards the quality management concept. They see it as purely technical, a cause of formalized paperwork and interfering with professionals' efforts to produce quality (Koch, 2003; Milikan and Colohan, 2004; Watty, 2006; Lomas, 2007). Contrary to this, others claim that quality assurance management has positive effects (Martens and Prosser, 1998;

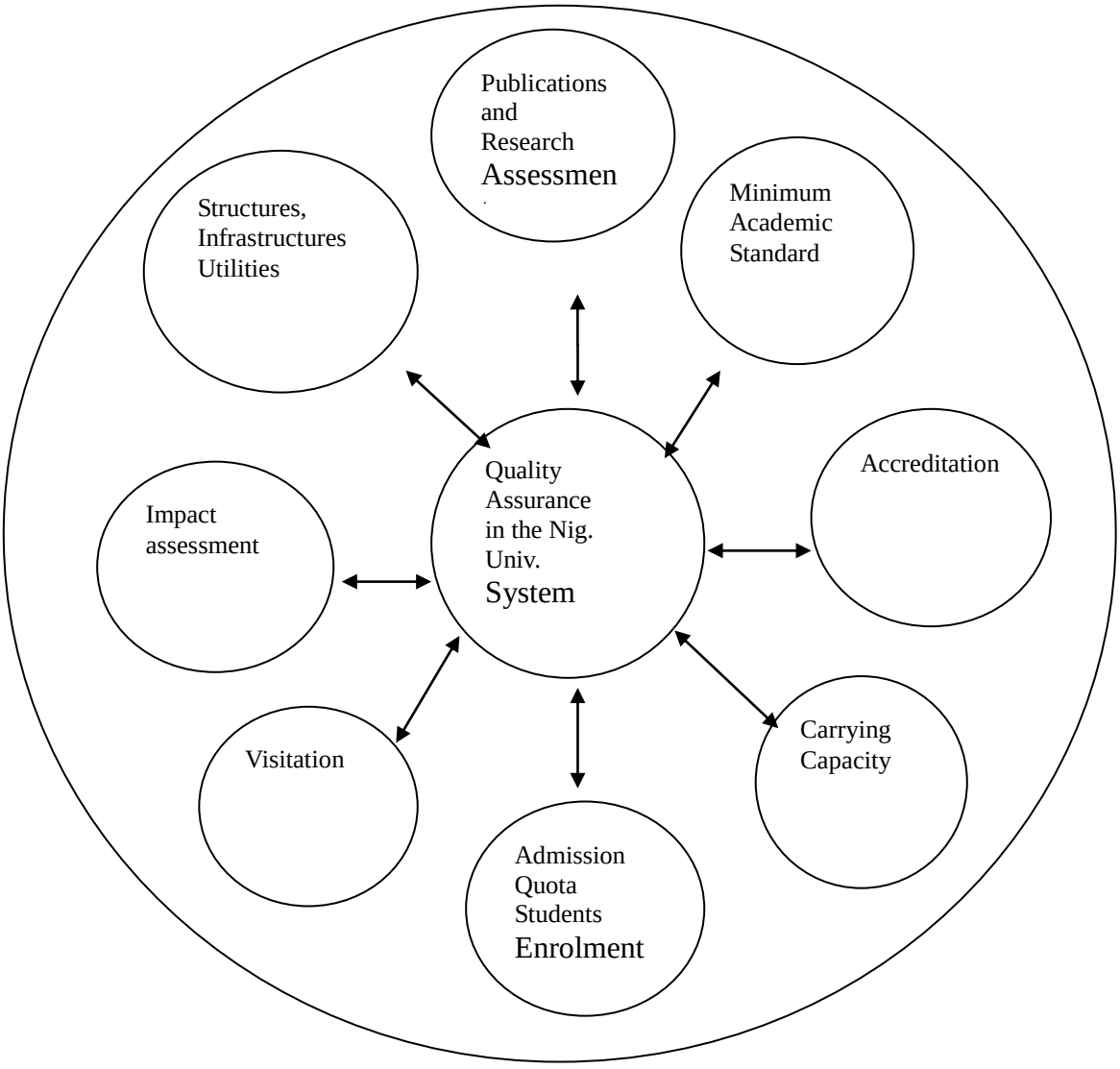
Brennan and Shah, 2000). Quality assurance evaluation management consideration is given to a broad range of aspects connected to teaching and learning in HEIs, which are often seen as: inputs, processes and outputs or result (Owlia and Aspin Wall, 1989; Van Damme, 2004, Sahney, Banwet, and Karunes 2004; Becket and Brookes, 2006). For example, inputs include financial, physical and human resources. While the processes include technical and professional but also related variables such as accessibility of the professional, friendliness and credible communications (Parasuraman, Berry and Zeithamel, 1991; Yeo, 2008). Output factors include to pass/fail rates and completion levels at graduation but also indirect factors such as career opportunities for alumni and impact on the labor market and society (Segers, 1993; Vroeijensteijn, 1995; Van Damme, 2004). Additionally, research indicated that the systems approach evaluation model in developing the theory-based program evaluation model for quality a combination of different approaches was used. The principle is that HEIs itself is measured as a system with its inputs, processes and outputs while the second approach is the higher-education relevance structure (Fatma Mizikaci, 2006).

Furthermore, a research finding on quality assurance in African higher education, quality audit in Africa is centered on a wide range of areas, including the extent to which institutions meet their missions and goals; relevance of academic and professional programs Hayward, (2006), but it is commonly agreed that quality in higher-education institutions in Africa is badly affected by adverse socio-economic and political events, which have resulted in decline in the quality AAU, (2007). These and comparable broad statements are made about the quality of HEIs in developing countries. But what seems to be missing is an argument that calls for the system to be more realistic in policy, scope and delivery: formulating policies that reflect the challenges. Hence it was categorically linking these to core university activities; which should then be supported by a well-designed quality audit system that is suitable in assessing, in the practical sense, the impact of the university activity on its socio-economic and cultural environment, which endangered the quality improvement? For instance, the University for Development Studies' Model seems to be closer to doing this and could be a valuable model to deal generally with the developmental challenges of most HEIs developing contexts. This means that if quality were to be viewed simply as fitness for purpose, the universities' policies and practices would likely have to score well in the fitness test, on condition that they had sufficient and appropriate resources, funding, facilities, and god governing.

2.1 EXISTING INPUT PROCESS (IP) CONSTRUCT FOR NUC.

University in developing countries (like Nigeria) to make any significant development and endeavor, one of the essential areas it necessities to embark upon, is to make efforts to set up comprehensible theoretical measurement instruments and reasonable meaning of the concept of quality assurance within its contexts and the applicability of some of the model mentioned by some of the scholars. The measurement will help university administrators to develop the management of the overhaul via a list of strengths and areas for improvement and the establishment and accomplishment of an expansion plan as recommended out by the literature. Therefore, to measure service quality in the university sector, it is contended that specific instruments should be developed and used. Similar concerns have been raised by Li and Kaye, (1998) significance, regardless of the fact that some studies tried to measure quality in the university without using any precise measurement instruments available in the literature Khan et al., (2008).

Figure: 1
Quality Assurance Evaluation Process in Nigerian University System.



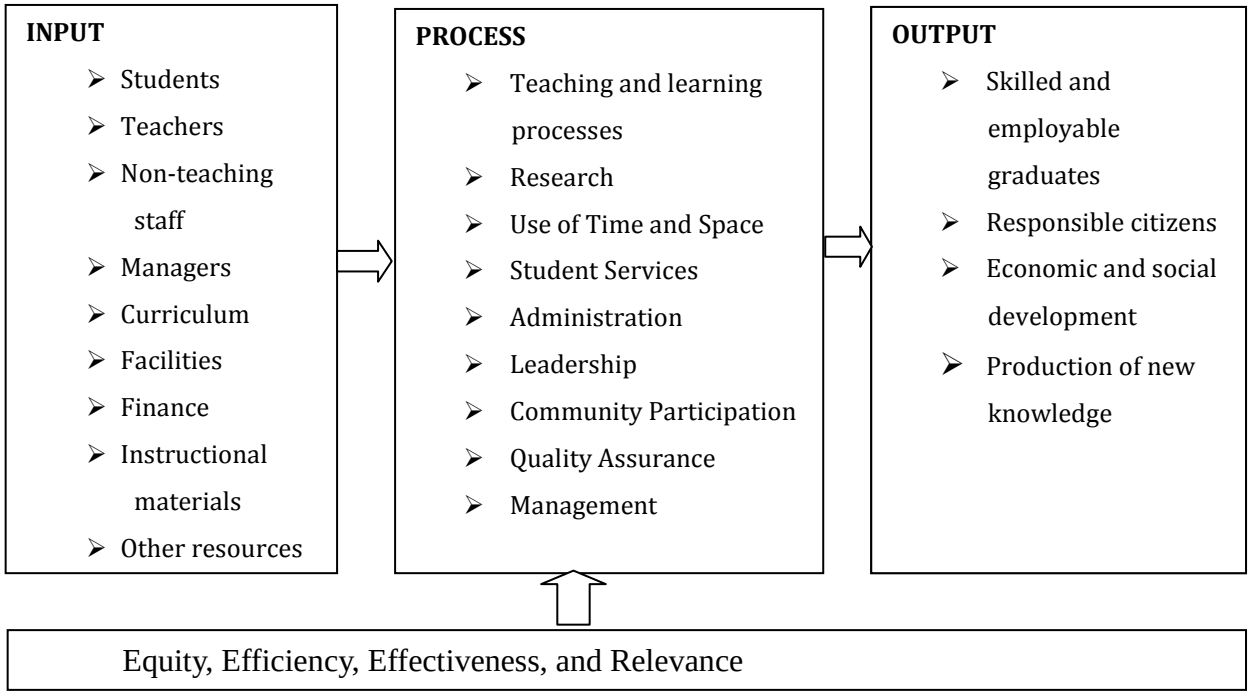
Sources: Adapted from: Adedipe N. O. (2007), P45.

Based on this views; there is a need to validate the psychometrics properties of the exiting QAEM (IP) construct of accreditation instruments in Nigeria. This empirical research seeks to resolve the challenges of quality assurance evaluation in HEIs in Nigerian practices, exclusively, the existing NUC accreditation instruments (Input process) practices through validation of the psychometrics properties of the existing QAEM (IP) for measuring the quality assurance of universities Nigerian. Consequently, the significant determinants of quality assurance in HEIs are acknowledged and distinctive instruments, QAEM (Input Process (IP), is developed. The proposes research model of QAEM Input Process, which comprised Mission, Vision, and Goals; Academic Content of the HEIs programmes; Human Resources infrastructure and core QM practices and their direct and indirect effects on quality performance. To establish and maintain high-quality standards, the universities and the NUC have a shared responsibility in addressing the key areas and some of the previous studies in relation to the proposed research.

Consequently, Adedipe, (2007) reported that the MAS forms the baseline for entrenching quality university education, since it prescribes a profile of curriculum, human

resources, structures, infrastructures, equipment and associated facilities required for establishing, governing and managing the university; the carrying capacity of a university is the maximum number of students whom the institutions can sustain for qualitative education based on available human and material resource; visitation to universities is a statutory requirement that empowers the proprietor to ascertain the well-being of the university; impact assessment is a specialized form of evaluation aimed at find out if the core expectations of the establishment of a particular university are being met; research is the driving force for human development as globally determined; such research should be evidenced by publications; structures, infrastructures and utilities are the essential driving force for qualitative productivity in any organization, particularly in the university system. Figure 1 above shows the details

Figure: 2
The Component Elements of Quality Assurance Evaluation.



Source NUC 2005, Okebukola, (2006).

Output includes the quality of graduates, as well as the external efficiency of HEIs systems. The quality of university graduates could be measured by how well they have been prepared for life and for service to society in various spheres of human endeavor. Quality may also be considered on the basis of how good and efficient the teachers are, how adequate and accessible the facilities and materials needed for effective teaching, and learning are and how prepared the graduates are for meeting the challenges of life and for solving the problems of society (Uvah, I. I. 2002). Stakeholder participatory process, minimum standards were set for; student's input, staff input, facilities input, course content, course delivery and evaluation system (Ramon-Yusuf, 2003).

The goals university education institutions should be presented on the general level in the mission vision and goal's statement and more concrete academic level in the programme objectives and expected learning outcomes. However, inputs into the system are those elements which are needed as raw materials for delivering effective quality of output predict for the system. These elements are very vital; so far, they from bedrock for building blocks for the growth of quality output. Hence, it is the interplay of the forces of the input during the

processing phase that emerges as the resultant output (Ramon-Yusuf, 2003; Adedipe N. O. 2007; Ekundayo 2004; Okebukola, 2010).

Okebukola, et al, (2005), (2007, and 2008) demonstrated that the quality assurance process examines the effectiveness and efficiency of the input, process and output elements of the teaching, learning, and research and service activities of a university. For example, the findings show that the quality of products can be measured by how well the graduates are being prepared to serve society and for meeting the challenges of the world of work. It can be judged through ascertaining how efficient the teachers are, and the adequacy of the facilities and materials needed for effective teaching and learning. The output includes the quality of graduates as well as the system's external efficiency Okebukola, et al, 2007, 2010; Ekundayo, 2004; Ajayi, 2006; Adesina, 2009). The component element of quality assurance evaluation below Figure 1 depicts details of the systems approach to QAE, which is based on dimensions of input, process and output. The input segment includes students, teachers, curriculum and facilities. On the process side, emphasis is on teaching/learning interactions, internal efficiency, research, evaluation procedure and management practices. The output includes the quality of graduates as well as the system's external efficiency and quality services Okebukola, et al, 2007, 2010; Ekundayo, 2004; Ajayi, 2006; Adesina, 2009 Waheed Afzal, Aneela Akram, Muhammad S. Akram and Aamir Ijaz 2010 Landrum, H., Prybutok, V., Kappelman, A., and Zhang, X. 2009).

The above system approach is similar to the existing NUC MAS for accreditation instrument in Nigeria University. In this research, the used to the vision, mission and goals as the main criteria for evaluation of management: The University has obviously formulated goals; the goals express clearly the purpose to achieve. The goals should be formulated in consultancy with all stakeholders. Furthermore, the application of the systems approach recommended that managerial understanding, its compliance to management-oriented (also decision-oriented) evaluation approaches needs to be maintained. The use of this management-oriented evaluation approach serves the decision-makers for the management team of an institution which can be so crucial for administrators, policy-makers, school boards, staff and other stakeholders. The models developed to involve a systems approach to education in which decisions are made about inputs, processes, and outputs. Therefore, there is a need to validate the instruments if there is the need for the adjustment or see my be IP is still in line with the measuring objectives. Therefore, this study demonstrated some of the items in the measurement instrument of the existing tools (input process) which needed to be revalidated in line with other's instruments or model use elsewhere. Figure 1below are the part of existing NUC accreditation instrument's model of ensuring quality of Nigeria university educational institutions through the use of MAS by the NUC in order to improve the quality of graduates from HEIs. Hence, the MAS the form the baseline for entrenching quality university education, since it prescribes a profile of curriculum, human resources, structures, infrastructures, equipment and associated facilities required for establishing, governing and managing the university.

3. Methodology

The research aims to test the psychometric properties for the existing quality assurance evaluation model (QAEM) IP for National Universities Commission (NUC) in Nigerian university educational institutions by which the universities can critically look at their practices with a view to develop and to promote quality assurance of the universities. Hence this can apply for the institution in Nigeria that will usher in quality services provided with dedicated leaderships of the institutions. The measurement model and structural model for existing QAEM IP were developed in these parts which consisted of the different factor model of an input process were tested for their fundamental importance and the overall model fit of the data (Hair, et al., 2006, Gerbing and Anderson, 1988, Tabachnick and Fidel, 2007 and

Kline, 2005). Survey research design is a technique in quantitative research in which investigators administer a survey instrument to a sample or to the entire population of people in order to define the attitudes, opinions, behavior, or characteristics of the population (Creswell, 2005). This research employed quantitative design. The survey research design is the outline upon which earlier outline objectives are accomplished, and the research questions are responded (Cavana et al., 2001 and Cooper and Schindler, 2008). These are established on the arrangement on which the data is collected, analysis and interpreted (Bryman and Bell, 2007, Bryman, 2004 and Cresswell, 2008). Hence the quantitative, consist of two sections. They are the exploratory and confirmatory.

In validating the psychometrics properties and developing the existing QAEM IP survey instruments, the data analysis was based on the following procedure application of Exploratory Factor Analysis; reliability test was performed were used to define the existing QAEM construct's arrangement of quality assurance evaluation services by absorption Alternative QAEM (IP) instruments. In addition, upon the satisfactory outcome's factor analysis and Exploratory Factor Analysis (EFA), Principal Component Analysis (FA and PCA) was conducted, which then followed by the Confirmatory Factor Analysis (CFA) was carried out to authenticate the IP construct's results. These were applied to improve the latent (unobserved) constructs of alternative QAEM constructs of IP accreditation instruments and to assess the measurement model reliability and validity which indicated there were with thin the threshold.

3.1 Data Procedure

Upon completion of sampling, potential participants were contacted to ascertain their willingness to participate in the study. Next, the respondents were given an informed consent form describing the purpose of the study, procedures, and prospective risks and benefits of participation. The consent form explained the conditions for voluntary participation, confidentiality, and contacts for questions about the research, and participants' rights were administered. The fieldwork was conducted between April and June 2012. Data were collected from the quality manager or general manager from the sample frame through a questionnaire. The research survey questionnaire was administered by the researcher himself in the selected universities in the North Central of the country Nigerian.

A cover letter explaining the study and the requirements to be in the study was sent to the representative of the selected universities. The permission to collect data from the respondent was received from selected university's administrators or the representatives of the management. The respondents were asked to complete the survey questionnaire anonymously. Their confidentiality was assured, and permission letters would be obtained from the federal Ministry of Education or the State Education Ministry. The permission from the individual university authorities was also done. Upon receiving the permission letter, the researcher personally discussed with the administrators of each university. Prior to the meeting, the researcher personally discussed with the officer of academic planning of the universities. The questionnaires were distributed through the help of the selected officer in various universities selected. The researchers personally ensure that all the questionnaires were distributed and also returned fully. Further to this, the questionnaire was attached with a cover letter that assured the confidentially of the data collected and described the major components of the questionnaires to be completed. The respondents were informed the purpose, benefit that the university's education would get from the study.

3.2 Sample and data collection method

A research development was carried out in sixteen universities in Nigeria using the survey questionnaire techniques administered to 1600 participants comprised vice-chancellors (university administrators), management teams, NUC staff, academic and non-academic staff,

director/deans/HOD s and students in the North Central Geo- Political Zone of Nigeria.

The quantitative data collected via the questionnaire surveys is analyzed using the Statistical Package for Social Sciences (SPSS) Version 17.0 and AMOS 18.0 will be employed to validate and compute the fundamental structures of the proposed measurement model of the quality assurance evaluation model which comprised input process, leadership characteristics of leaders and stakeholder's contributions. The data undergoing the data cleaning process out and the outcome demonstrated that only 1109 can be used for the research out of the 1600 collected. As descriptive analyses were performed – mean standard deviations and so on. Furthermore, PCA and CFA would also be employed to extract factors constitute the quality assurance evaluation model which comprised input process.

In the CFA technique, the researcher is a priori aware of the number of factors that are required to explain the inter correlation between the measured variables. Furthermore, the researcher is also aware of (through existing of literature available on research studies) the observed components that are essentially reliable indicators of each of the factors correlate together, and the components that are not related to a factor or did not contribute significantly to the dimensional factors will be removed (Sureshchandar et al., 2001; Kaynak, 2003). In addition, dimensional constructs with eigenvalue of 1 or greater than 1 were considered relevant factors. Moreover, such construct should be regarded in the research. After a satisfactory preliminary test to ensure, there is no violation of Multivariate assumption, CFA was run to authenticate the reliability and validity of the measurement model, demonstrated the measurement model, specifying the constructs and the manifest variables/indicators items used in measuring each of the dimensional constructs. Thus, the indicators/items used to measure the input process (IP) constructs were adapted and modified from the NUC Minimum Academic Standard criteria for accreditation 1974, 1999 (Okebukola, 2002; Brochado, 2006, Firdaus, 2005; Firdaus, 2006a; Firdaus, 2006; Firdaus, Alwi, Lee and Ho, 2008; Sahney et al., 2004; Ho and Wearn, 1995; Tan and Kek, 2004) with minor modification in some the items to suit the university context.

For this study, the data sets of ($^{N}1 = 555$) were randomly split into two - halves from the total of 1109 were used to demonstrate the unique CFA modeling opportunities offered by Maximum Likelihood Structural Equation Modeling (MLSEM) based CFA modeling. (Asparouhov and Muthén, 2009; Muthén and Asparouhov, 2010, Asparouhov and Muthén, 2009) cited in by G. Lawrence Farmer, Sarah McMahon and Chaya S. Piotrkowski, (2012). Based on the existing QAEM IP constructs of NUC accreditation instrument's factors and the measures was defined modified and the input process were from the NUC manual for accreditation, modified in Nigeria's context of university educational system; a questionnaire was finally designed. The survey questionnaire was reviewed by quality assurance management academics, colleagues and professionals and tested through a pilot study on 300 Nigerian studies in IIUM. The survey questionnaire consisted of four parts. The first part contained ten questions regarding the demographics profile of the participants while the second part comprised the survey instruments' constructs. For this study only the first part will be used for this study, which is the existing QAEM of an input process (IP). The fourth part contained **38** questions regarding existing QAEM constructs of IP accreditation instrument's factors, which mission and vision, academics content, human resource, physical facilities, financial management, library and employer rating. A seven-point Likert scale was used to respond to the survey questions.

Consequently, before multivariate data analysis, the study examined the assumptions on the subject of the sample size, outliers, variables (continuous – categorical), their multicollinearity and multivariate normal distribution. Observed variables that caused violations in meeting these assumptions were excluded from the analysis (Hair et al. 2005, 2010). It is pertinent to say here that the finding of the above demonstrated that remaining variables above assumptions are not violated (for instance, sample size 300, correlations

between observed variables, 0.85. A number of significant factor relationships were distinguished across the factors, such as the steadily higher correlations between the existing, IP QAEM constructs of NUC latent factor, which advocated an initial indication of the test-retest strength of these unobserved variable/factors.

4. DATA ANALYSIS PROCESSES

This section presents the statistical techniques to be used for each research question and to test the hypothesis set for the research.

4.1 Statistical Techniques

This section presents the statistical techniques to be used for each research question and to test the hypothesis set for the research. The constant comparative method of data analysis would be used in this research to generate and verify the theory (Glaser and Strauss 1967).This method would be used by the researcher simultaneously to code and analyze the data in order to generate proposition (Taylor and Bogdan, 1984). Marshall and Rossman, (1995) indicated that data analysis is the process of bringing order, structure and meaning to the mass of collected data. Thus, a balanced data would be gained from the participants involved in the research. Phases of data analysis would be employed in this research. This study try to finding the psychometrics analysis of the alternative QAEM construct of IP of accreditation instrument by employing two estimation approach of structural equation modeling. Both the EFA and the FA/PCA analysis characterize an imperative diagnostic tool for social work researchers seeking to develop and examine evidence of the validity of the measurement tools. Confirmatory factor analysis (CFA) is principally attractive to many researchers because of the requirement that theory and prior research be used to identify fundamental factor structure of the measure that is being evaluated (Hurley et al., 1997).

Thus, EFA is a process of evaluating the belongingness of the items to certain factors in the construct. If the instrument is said to be dimensionally sound, those items should only measure the factors that they belong to and not any other factor. Some researchers categorize dimensionality under content validity in argument that dimensions are a part of the content of a construct while some others are, by and large, the group them under construct validity (Sureshchander et al., 2002) Consequent upon the exploratory factor analysis, a reliability test was performed to check the stability of the items. The item-total correlation was used to clean items that were deemed unpredictable. Items with a manifestation greater than 0.4 were considered for factor analysis (Nunnally, 1963). The EFA was used to recognize the achievement factors of QAEM of NUC accreditation in Nigerian of (45) alternative for NUC accreditation instrument. The approach of PCA was used to conform to dimensions, which were not conceptually related. It is conducted to construct-validate the factors influencing quality assurance of higher institution. The researcher used the following criteria to justify the use of PCA in identifying those things required within university education context. The PCA was used as the insertion technique to make out the factors. Items with factor loadings less than 0.4 were deleted, and the left-behind survey instruments were subjected to the second round of the EFA. The factors were rotated using the Varimax rotation method with Kaiser Normalization while the extraction method used was maximum likelihood. The EFA revealed that there are seven (7) dimensional factors that explain the QAEM (Input Process) in Table below.

TABLE: 1
ALTENATIVE QAEM: ITEMS REDUCTION OF
INP PROCESS (IP) CONSTRUCTS

Component	Components Factor	No. Instruments	I/R	R/ N	D/ I
Input Process (IP	1. Mission, Visions and Goal	MV (Q3), MV2 (Q2), MV3 (Q4), MV4 (Q7), MV5 (Q8), MV6 (Q1).	6	MV	MV6
	2.Academic Contents	AC1 (Q13), AC2 (Q14), AC3 (Q12), AC4 (Q19) and AC5 Q23)	5	AC	AC11, 15
	3.Human Recourses	HR1 (Q27), HR2 (Q28), HR3 (Q29), HR4 (Q31) and HR5 (Q30).	5	HR	HR 24, 25
	4.Physical Facilities	PF1 (Q33), PF2 (Q38), PF3 (Q41), PF4 (Q39), PF5 (Q42), PF6 (Q44)	6	PF	PF 35, 37
	5.Financial Management and Stability	FM1 (Q50), FM2 (Q48), FM3 (Q45), FM4 (Q52) and FM5 (Q35)	5	FM	-
	6.Library	LI 1 (Q53), LI2 (Q54), LI3 (Q58), LI4 (Q55) and LI5 (Q56).	6	LI	LI 57
	7.Employer Rating	ER1 (Q63), ER2 (Q64), EER3 (Q60), ER4 (Q61), and ER5 (Q62).	6	ER	-

NB; Indicators Retained (I/R); Re- Named (R/N) and Discarded Indicators (DI)

Table1 above, after the employment of EFA it shows that there out of the 45 survey instruments for the IP; 38 indicators met the guideline set and were retained, which represents the observed variable for IP. Of which eight (8) instruments were dropped because of factorial complexity of instrument. The 38 indicators were now regarded as factor structure instruments for IP, which loaded into seven (7) distinct components, which are shown in the above Table 1. Results of the EFA were used to ascertain instruments with approximately corresponding loadings on the factor labeled. The seven construct, which represent IP were labeled as follows; MV, AC, HR, PF, FM, LIB and ER respectively. Similarly, from the Table 2, after the employment of EFA it shows that there are 45 instruments, 38 instruments met the guidelines set and were retained, which represents the observed variable for IP. 8 instruments were dropped because of factorial complexity of instrument.

The CFA is used to test the dimensionality. Exploratory structural equation modeling allows for better flexibility in the models that can be estimated, improve correspondence between exploratory and confirmatory factor analysis results, and more efficient model modification procedures within the context of CFA than are presently used (Asparouhov and Muthén, 2009; Muthén and Asparouhov, 2010). CFA model is often applied to confirm the hypothesized relationship between a set of observed variables and a set of latent variables. Hu and Bentler (1998) point out that CFA is used to estimate model fit measures in this research. In this procedure, the number of factors and the items loading for each factor were specified

and the hypothesized measurement model was then tested for model fit. The confirmatory factor analysis revealed the seven (7) grouping or dimensional constructs, which constitute to the quality assurance evaluation in university sectors. Hence, the dimensions are: IP ('Mission, Vision and Goals, Academic Content, Human Resources, Physical Facilities, Financial Management and Stability, Library and Employer Rating

Structural Equation Modeling (SEM) would be applied and guided to the response to each research question and also to evaluate the model. This is a statistical technique that combined both characteristics of factor analysis, path analysis and multiple regression, which enable the researcher in evaluating comprehensive interrelated dependent interaction and the effects of measurement errors in the structural coefficients simultaneously (Silván1999; and Hair, Anderson, Tatham and Black, 2006). SEM is occasionally called a latent variable causal modeling because it is used to test causal models and theories, and since it involves the dimension of latent variables (Mayer, 1999; and Byrne, 1994). Furthermore, it is generally viewed as a confirmatory (Tabachnick and Fidel, 2001). Some of the advantages of using SEM are: (1) SEM helps in controlling error and force to get positive results of the findings, (2) it accessed to be latent construct, (3) it accesses measurement and strata model, (4) it accesses many Stratton in simultaneously, (5) it accesses many determinant relationships with latent in other to know the weak and strength of relationship, (6) it accesses observable through indicators of multiple's indicators in other to give less error, and (7) it tested for the moderation of mediating variables. The statistical techniques that would be used to analyze the data and answering each research question are explained accordingly below.

4. 3 Input Process Principal Component Analysis.

The approach of (PCA) was used to conform to dimensions, which were not conceptually related. It is conducted to construct-validate the factors influencing quality assurance of higher institution. The researcher used the following criteria to justify the use of PCA in identifying those things required within university education context.

Firstly, the results demonstrated that survey instruments had the overall means of above the threshold recommended, and the range of standard deviation indicated a well-dispersed variation of data. In general, the instrument used was highly reliable as demonstrated by Crombach's Alpha > .7. The research retained factors with eigenvalue over 1.0. Results of exploratory factor analysis show the existence of three main dimensions explaining 89 percent of the total variance. Factor loadings of the scale items are comparatively great ranging from 0.73 to 0.96, which are extensively more than the bare minimum bearable threshold of 0.30 (Hair et al., 1995; Grandzol and Gershon, 1998), indicating sufficient support for construct validity. Subsequently, after the application of treatment of outlier through the Mahalanobis distance and checking the normality and Homodasencity of the data, the data to be used remaining at 1109, which is in line with recommended sample size for analyzing using PCA/FA and SEM(Kline,2008 2008, Tabacnick and Fidell, 2007).

On descriptive statistics M and SD for each of the constructs with varimax rotation was carried out to assess the fundamental structure for the 45 instrument items of the input process for the existing NUC accreditation instrument questionnaire, and to find the exploration arrangement of the items under the formerly hypothesis factor. However, from the finding, the analysis revealed that there were seven dimensional constructs of the input process were thus properly highly loaded under the proposed hypothesis model of the study. For instance, the seven dimensional factors are named as exhibited in Table 2. Hence, the result clearly shows that the seven dimensional construct is voided of dimensional construct complexity and low loading criteria. Besides, all the items in the construct that were below the researcher threshold point, defiance of criteria of loading and factorial complications were removed from the analysis.

Furthermore, the degree of inter- correlation between the instrument items also reaches

a satisfactory level of Bartlett Sphericity Test, which resulted into a statistically significant x2 (625) =4300.140, p ≤ ·001. KMO = .90. And all other variables of individual measure MSA shows that it ranges from 0.73 and .94**,** while the items total correlation ranges from 0.68 and 0.95**.** , which indicated a high inter- item correlation of the study. Additionally, the result revealed that the seven eigenvalue eigenvalue from 2.65 to 8.46 (which is greater than 1 as required), fulfilled the principles of important factors as agreed by (Hair et al. 2006). The extracted dimensional factors accounted for almost 79.65% of variance explained in the input process quality assurance evaluation scores. The result of the reliability factor analysis, which was performed by Crobach's Alpha on dimensional constructs extracted by PCA revealed that the factors composing the dimensional construct are all trustworthy. The reliability of the seven dimensional input the input process as follows.

To elaborate upon the 7 factors extracted from the existing NUC accreditation instrument scales, Factor one, which is structured as mission, vision and goal element, which constituted 10 items were initially hypotheses on the weighted factor. Of which 8 items were highly weighted with the hypothesis's factor. The fundamental standard of 0.50 loading or above was met. Hence, two (2) items were both remove for further analysis. More exclusively, the 2 items had factorial complexity due to cross- loading, and other items did not meet the fundamental standard of factors loading. The loading ranging between .79 and 93 on the following 8 items (MV1. MV2, MV3, MV4, MV5, MV6, MV7, MVG8, MV9, MV10) with Alpha Cronbach reliability of 0.90 details is exhibited in Table 2 below shows the results

The second factor, which also initially hypotheses to 13 items of an element of academic contents. Of which 13 items initially hypotheses on these factors, only (6) items were properly loaded. The other 7 items factors were all discarded because of low factor loading, cross loading and factorial complexity. They were removed from the analysis. The loading ranging between .77 and 90 on the following 6 items (AC83, AC87, AC77, AC89, AC88 and AC90) and with Alpha Cronbach reliability of .90. Refer to Table 2 for details

In relationship with factor three, which named as Human resources element support for QAEM, 8 items were initially hypothesized on this factor. Of which, all the 7 items were accurately loaded under this hypothesis on the factor except one item for factorial difficulty, which was removed from analysis. . The loading ranging between .70 and 92 on the following 7 items (HR78, HR89, HR92, HR89, HR90, HR90 and HR70) and with Alpha Cronbach reliability of .90.

Regarding to factor four, which characterize elements of physical facilities centered on 13 items were initially constituted, but of which, 8 were properly loaded and weighted on the dimensional construct hypotheses initially 6 items were discarded. Thus, the items remove had factorial complexity and violation of the criterion set and cross loading on some factors. The loading ranging between .68 and 90 on the following 7 items (PF90, PF89, PF76, PF70, PF87, PF84, PF68 and PF80) and with Alpha Cronbach reliability of 0.90. Table 2 for details

Furthermore, the fifth factor which is concerned with financial management and stability constituted 8 items. Of which four items generated were highly weighted on the criterion of .50. Loading or above. The 4 items were significantly loaded under the proposed hypothesized factor model. However, 4 factors were not properly loaded and entail factorial difficulty, and it has been low loading. The loading ranging between .68 and 90 on the following 4 items (FM90, FM89, FM79 and FM88,) and with Alpha Cronbach's reliability of .90.

The sixth factor which is labeled as library element consisted of 6 items. Of which all the 6 items were significantly loaded under the proposed hypothesized factor model. However, the six items can be used for further analysis. Since all items were free from factorial difficulty and low loading magnitudes. The loading ranging between .68 and 90 on the following 6 items (LI79, LI90, LI88, LI69, LI88 and LI77) and with Alpha Cronbach's reliability of .89.

The final factors, which represent elements of employer rating, consisted of 6 items. Of which 5 factor items were appropriately weighted on the dimensional construct formulated for the hypotheses. Hence, one item was eliminated because of factorial complication, low loading. However, they were discarded from the further analysis. The loading ranging between .68 and 90 on the following 5 items (ER89, ER90, ER7, ER68 and88) and with Alpha Cronbach reliability of 0.93. Hence, all the results of factor's analysis (factor loadings, anti-image, mean and standard deviation. Value, construct reliability on QAEM: existing NUC accreditation instrument results are revealed in details in Table 4 above for details.

Table: 2
Input Process Instrument, Factors Analysis (Factor Loadings, Anti Image, Mean and Standard Deviation. Existing Quality Assurance Modell for NUC Accreditation Instrument.

DIMENSIONAL	Nos.	MEAN	SD	CRONBACH ALPHA	FACTOR LOADINGS	MSA	EIGENVALUE
MISSION,VISSIONAND GOALS	MV 1	5.67	1.53	0.90	0.68	.90	8.42
	MV 2	3.34	1.40		0.77	.88	
	MV 3	6.55	1.23		0.86	.78	
	MV 4	6.40	1.67		0.87	.67	
	MV 5	3.78	.98		0.70	.80	
	MV 6	5.34	1.24		0.90	.92	
	MV 7	4.89	1.38		0.78	.94	
	MV 8	5.50	1.64		0.90	.70	
	MV 9	5.70	1.56		0.56	.59	
	MV 10	4.89	1.89		0.60	.61	
TOTAL ITEMS	10						
ACADEMIC CONTENT	AC 11	4.36	1.11	0.92	0.89	.89	
	AC 12	6.76	1.15		0.87	.90	6.42
	AC 13	6.74	1.59		0.77	.60	
	AC 14	5.96	1.38		0.89	.72	
	AC 15	3.78	1.72		0.88	.88	
	AC 16	4.50	1.59		0.54	58	
	AC 17	3.69	1.67		0.60	.50	
	AC 18	5.01	1.98		0.59	.59	
	AC 19	4.78	1.23		0.58	.56	
	AC 23	6.99	1.37		0.90	.68	

TOTAL ITEMS	10						
HUMAN RESOURCES	HR 24	4.66	1.70	0.90	0.78	,90	
	HR 25	5.97	1.63		0.89	.89	2.65
	HR 26	2.56	2.45		0.59	78	
	HR 27	6.20	1.00		0.92	.94	
	HR 28	3.56	1.09		0.89	.92	
	HR 29	6.99	.97		0.90	.90	
	HR 30	5.57	1.42		0.90	.88	
	HR 31	5.60	1.70		0.70	.91	
	HR 32	2.20	2.40		0.54	.79	
TOTAL ITEMS	9						
PHYSICAL FACILITIES	PF 33	3.42	1.44	0.90	0.91	.73	8.44
	PF 34	7.45	2.00		0.64	0.58	
	PF 35	5.48	1.65		0.89	.89	
	PF 36	2.33	3.89		0.61	.64	
	PF 37	6.56	1.20		0.76	.75	
	PF 38	5.20	13.0		0.70	.90	
	PF 39	4.43	1.09		0.87	.83	
	PF 40	3.45	2.43		0.62	.65	
	PF 41	5.89	1.50		0.84	80	
	PF 42	5.76	1.32		0.68	.79	
	PF 43	3.20	2.56		0.57	.67	
	PF 44	4.55	1.77		0.80	.69	
	PF45	2.89	3.45		0.52	.67	
TOTAL ITEMS	13						
FINACIAL MANAGEMENT STABILITY	FM 45	6.28	1.50	0.91	0.90	.69	8.20
	FM 46	3.43	1.80		.59		
	FM 47	2,34	2.68		0.60	.60	
	FM 48	5.08	1.01		0.89	88	
	FM49	1.45	2.41		0.52	.59	
	FM50	4.14	1.61		0.79	.90	
	FM 51	1,98	3.00		0.49	.58	

	FM 52	6.89	1.38		0.88	.72	
TOTAL ITEMS	8						
LIBRARY	LI 53	5.29	.89	0.89	0.78	.78	7.76
	LI 54	5.29	1.65		0.90	.90	
	LI 55	6.17	1.00		0.88	.70	
	LI 56	6.07	1.47		0.69	.65	
	LI 57	6.00	1.20		0.88	,88	
	LI58	5.86	1.09		0.77	.67	
	LI 59	4.45	.56		0.59	.59	
	LI 60	2.89	6.41		0.60	.61	
TOTAL ITEMS	8						
EMPLOYER RATING	ER 60	5.86	1.56	0.93	0.89	.85	
	ER 61	4.50	1.00		0.90	.72	8.90
	ER 62	4.53	1.79		0.67	.69	
	ER 63	4.48	1.30		0.68	.80	
	ER 64	5.87	1.78		0.68	.68	
	ER 65	2.97	6.65		0.71	.74	
TOTAL ITEMS	6						

NB: MVG= MISSION, VISSIONAND GOALS, AC= ACADEMIC CONTENT, HR=HUMAN RESOURCES, PF=PHYSICAL FACILITIES, FMS= FINACIAL MANAGEMENT STABILITY, LIB= LIBRARY, ER= EMPLOYER RATING.

In addition, Cronbach's Alpha analysis, which employed on each factor extracted by PCA techniques, indicated that the factors composing the dimensional construct are reliable for further analysis of the study. Conversely, the reliability indicator for the retained 7 dimensional factor of the input process (IP) which comprised [(MV 8items); (AC 7items); (HR 7items (of); (PF 8item); (FM; 4items); (LI 6items) and (ER 5items) which accounted between the range of 90- 95-thus criteria set is fulfilled. Table 2 above explains in details the input process factor loading.

5. FINDING AND DISCUSSION OF THE STUDY

In order to test the hypothesized model, SEM was used to examine the entire pattern of the inter-correlation at once, not examining the individual bivariate relationship independently (Byrne, 2001). The statistical techniques that would be used to analyze the data and answering each research question are explained accordingly below which demonstrated the finding aims and objective of this study. It thus projected that the results of fitness of the existing QAEM (IP) constructs of NUC accreditation instruments should be similar. It provides a synopsis of the means by which each approach degree researcher's ability to estimate models that are more precise depictions of the theoretical bedrocks of the study. The overview covers: overview of exploratory structural equation modeling estimation, the application of some other fit indices such as NFI, AGFI, GFI and RMSEA, new methods of model modification to evaluate models).

Research Question 1:

Do all indicators of Input (IP) [MV1, AC1, HR1, PF1, FM1, LI1 and ER1] represent Input (IP) as indicated in the proposed QAEM?

Research Hypothesis 1:
All indicators of Input (IP) [MV1, AC1, HR1, PF1, FM1, LI1 and ER1] represent Input (IP) in the proposed QAEM.
Research question 1 indicates that does IP is represented by its indicators such as MV, AC, HR, PF, FM, LI and ER. Hence, this research will try to examine or investigate if these seven indicators represent IP. Hence, the most possible way of answering this research question is by using the PCA, EFA and CFA (Hair, et al., 2006 and Tabachnick and Fidel, 2001). There are some conditions to be fulfilled here: (1) The research would only take into consideration of eigen values of more than one in case of PCA, (2) In case of EFA; the research would only consider the factor loadings of .40 and above, and (3) The research would only consider the factor loadings of .60 and above as well as ensuring the best model fit to the data at .05 significant level (Arbuckle and Wothke, 1999, 2006).

RQ 2: Do all constructs fulfill the psychometric properties in terms of content, discriminant and convergent validity?
H 2: *All constructs fulfill the psychometric properties in terms of content, discriminant and convergent validity*
Research question 2 indicates that does IP is represented by its indicators such as, see Figure 3 Hence, this research will try to examine or investigate if these 16 indicators represent QAEM. in summary, the most possible way of answering this research question is by using the PCA, EFA and CFA (Hair, et al., 2006 and Tabachnick and Fidel, 2001). There are some conditions to be fulfilled here: (1) The research would only consider of eigenvalue of more than one in case of the employment of PCA, (2) In case of EFA. The research would only consider the factor loadings of .40 and above, and (3). The research would only consider the factor loadings of .60 and above as well as ensuring the best model fit to the data at .05 significant levels (Arbuckle and Wothke, 1999, 2006).

The decision to accept/reject the Hypothesis 2 also based on the conditions set by SEM (AMOS). As SEM generated a result is a confirmatory in nature, meaning that the result can only be accepted if the respective measurement model fits the data well after considering the model's re-specification. Hence the strong condition for convergent validity is that all the instrument items loading significantly on their hypothesis latent variable and have been loading of 0.60 or better (Anderson and Gerbing, 1998). Hair et al., (1988) suggested that item load (the standardize regression weight) 0.50 or greater, are considered to be significant. Ideally, 0.70 or higher should provide evidence of convergent validity (Hair et al., 2005). There is evidence of both discriminant and convergent validity based upon the result of the modification and re- modification of the IP in terms of the parameter estimate and the square multiple correlations (SMC) of the IP.

RQ 3: Do all constructs fulfill the psychometric properties in terms of reliability and internal consistency?
H*: All constructs fulfill the psychometric properties in terms of reliability and internal consistency.*
Research question 3 indicates that does IP is represented by its indicators such as in Figure 3. Hence, this research will try to examine or investigate if these seven indicators represent existing QAEM. (IP) Hence, the most possible way of answering this research question is by using the PCA, EFA and CFA (Hair, et al., 2006 and Tabachnick and Fidell, 2001). There are some conditions to be fulfilled here: (1) The research would only take into consideration of

eigenvalues of more than one in case of the employment of PCA, (2) In case of EFA; the research would only consider the factor loadings of .40 and above, and (3) The research would only consider the factor loadings of .60 and above as well as ensuring the best model fit to the data at .05 significant level (Arbuckle and Wothke, 1999, 2006).
The decision to accept/reject the Hypothesis 3 also based on the conditions set by SEM (and AMOS). As SEM, generated a result is a confirmatory in nature, meaning that the result can only be accepted if the respective measurement model fits the data well after considering the model's re-specification. Hence the model needs to fulfill at least ten (10) threshold (Table 3) values of model fit (Hair, et al., 2006).Unidimestionality Unidimestionality alone although a prerequisite is not sufficient to establish the importance of the scale. Thus, when unidimestionality of instrument establish the statistical reliability should be assessed before subjected to any further validation analysis (Ahire et al., 1996). Consequently, the outcome demonstrated that the reliability is within the threshold set for the study. The results range from employer rating(ER) 0.93 (highest) to library 0.89 (lowest)

RQ 3: Do all constructs fulfill the psychometric properties in terms of unidimensionality of the construct?

H 3*: All constructs fulfill the psychometric properties in terms of* unidimensionality of the construct.

Research question 3 indicates that does are represented by its indicators such as in Figure 3 Hence, this research will try to examine or investigate if these 16 indicators represent QAEM. Hence, the most possible way of answering this research question is by using the PCA, EFA and CFA (Hair, et al., 2006 and Tabachnick and Fidell, 2001). There are some conditions to be fulfilled here: (1) The research would only takes into consideration of eigenvalue of more than one in case of the employment of PCA, (2) In case of EFA; the research would only consider the factor loadings of .40 and above, and (3) The research would only consider the factor loadings of .60 and above as well as ensuring the best model fit to the data at .05 significant level (Arbuckle and Wothke, 1999, 2006).
The decision to accept/reject the Hypothesis 3 also based on the conditions set by SEM (and AMOS). As SEM, generated a result is a confirmatory in nature, meaning that the result can only be accepted if the respective measurement model fits the data well after considering the model's re - specification. Hence the model needs to fulfill at least ten (10) threshold (Table 3) values of model fit (Hair, et al., 2006). Unidimestionality alone although a prerequisite is not sufficient to establish the importance of the instruments. Thus, when unidimestionality of instruments establish the statistical reliability should be assessed before subjected to any further validation analysis (Ahire et al., 1996). Table 4 demonstrated the dimensionality of the IP construct of accreditation instruments based on the goodness of fit used. All are within the threshold set for the study.

The hypothesized model of the research fit the data and hence proves to be the model of study (QAEM for Nigerian University Education System. The supposition underlying the appropriateness of factor analysis is to ensure that the data matrix has sufficient correlations to justify its application (Hair et al., 1995). The overall fit of the model to the data was evaluated in different ways. Exclusively, an exact fit of a model is indicated when the p for chip-square ($\chi 2$) is above a certain value (usually set to p. 0.05) as well as indicated by other goodness-of-fit measures. To indicate the goodness- of fit of the model between the priori factor structure and the data of each group, would be evaluated with the following based on their threshold and hence the consistency of the model with the data collected was determined by Confirmatory Factor Analysis was used to assess dimension model reliability and validity. The researcher was involved in using of some measure of indexes in order to judge the measure to which the Structural Equation Model fit the sampling data for the study. Ensuing the recommendations in the related literature, the measurement model consents correlating

spontaneously with every other's constructs, with no causal relationship indicated between the latent constructs (Byrne, 2001; Chau and Ho, 2001; Jiang et al., 2001).

Table 3
Goodness-Of-Fit Measures of a Model, Recommended Guidelines And Indices Measurement Model

Goodness-of-fit Measures	Recommended Threshold Values
X2	P= 0.01
DF	
CMIN/DF	≤ 3 to 5
GFI	≥ 0.90 or above
AGFI	≥0.90 or above
NFI	≥ 0.90 or above
TLI	≥ 0.90 or above
CFI	≥ 0.90 or above
IFI	≥0.90 or above
RMSEA	≤ 0.50 to 0.80
SRMSR	≤ 0.10 close to zero the superior
R2	≥0.90the larger the finest

Degree of freedom (df); Relative likelihood ratio (x 2/df) ; Goodness-of-fit index (GFI); Adjusted goodness-of-fit index (AGFI); Comparative fit index (CFI); Non-norm ed fit index (NNFI); Incremental fit index (IFI); Root mean squared error of approximation (RMSEA); Standardardize Root Mean Square Residual(SRMSR)

The goodness-of fit index is grouped into incremental measure, absolute measure and parsimonious measure. The researcher examines the importance. Subsequently, numerous studies have indicated that in assessing model –fit, some fit-indices could be used as indicators (Byrne, 2001). They are as follows: 1) the Normed chi-square or chi-square to degree of freedom X^2/df), 2) the Goodness-of-fit index (GFI), 3) the Adjusted Goodness-of-fit index (AGFI), 4) the Tucker-Lewis index (TLI), 5) the Comparative fit index (CFI), 6) the Normed fit index (NFI), 7) the Root means square error of approximation (RMSEA), 8) the Incremental fit index (IFI), 9) the Standardize roots' mean-square residual (SRMR), 10) the R^2 is commonly used to summarize results off multiple regression analysis (ordinary least of Square's R^2 (Byrne, 2001; Bollen, 1989; Hair et al., 1998 Kline, 2003; Brown and Cudeck, 1993). In this research on ten (10) fit indices would be sufficient to judge the goodness- of –fit of the validity of the model. In line with this, literature as recommended model fit can be assessed by quite a few indices (Bollen and Curran, 2006; Joreskog and Sorbom, 1996; Kline, 1998, 2006). The following will be used: The Comparative Fit Index (CFI) is a recommended index of overall fit (Gerbing and Anderson, 1993), The CFI where the range is between 0 to1 with 0.90 or greater demonstrate the tolerable fit thus where CFI has a good comparative performance in relation to model complication (Hulland, et al., 1996), Root Mean Square Error of Approximation (RMSEA) offers evidence in terms of inconsistency per extent of freedom for a model (Steiger, 1990) and Normed Fit Index (NFI) measures the fraction by which a model is enhanced in terms of fit compared to base model (Hair et al., 2006). The acknowledged thresholds for these indices 2/df ratios should be less than5; the standard values of, CFI, NFI should be greater than 0.9; and RMSEA is suggested between 0.05 and tolerable up to 0.08 (Gefen and Straub, 2005). Table 3 above is the threshold set for the goodness of fit

of the survey instrument of IP.

Furthermore, Chi-square goodness-of-fit was used as the element of the measures with p>0.05(non-significant) exhibiting a good model fit (Garver and Mentzer, 1999). Followed by the relative chi-square test (df<3) is recommended where the value lower than three (3) established and suitable fit (Kline, 1998). The common and acceptable criteria of fit indices used in structural equation modeling analysis are shown in Table 3 above. Hence only applicable fit indices were carefully chosen in examining of the overall fit of the measurement model CFA and structural equation modeling SEM of the QAEM for NUC accreditation instruments.

5.2. Existing QAEM: Confirmatory Factor Analysis of Input Process (IP) Constructs

The dimensionality of the IP was sought through a PCA to extract the vital factors that represent the existing QAEM constructs of NUC after which a confirmatory factor analysis (CFA) was conducted to confirm the dimensionality obtained through PCA. Thus, the data sets for the existing QAEM constructs of NUC which comprised 45 variables instruments initially hypothesized, there were seven factors.

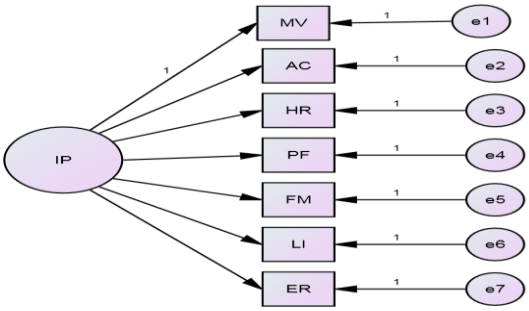
5.2 Confirmatory Factor Analysis (CFA) for the Dimensionality of Existing QAEM (IP) Accreditation Instruments

The research used SPSS AMOS18.0. Data-fitting program, supported the hypothesized interaction among constructs or the estimation of the hypothesized model QAEM of the research (Arbuckle and Wothke, 1999) specifically; the maximum likelihood estimation of the model yielded the several important results, which collectively supports the adequacy of the model in generating estimates of the results of the full fledge SEM (Byrne, 2010). The application of CFA model for IP was anticipated that the vital IP was dimensionality of seven factor model structured for the research, which entails the following MVG, AC, HR, PF, FMS, LIB and ER. The model is schematically represented in Figure 3 below which consists of the following. The seven (7) factor models are represented the seven ellipse labeled as MV, AC, HR, PF, FM, LI and ER. Hence all the seven factors are inter-correlated, which are represented by double- headed arrows in Figure 3 below which are designed to test the dimensionality of the IP constructs which are described by the two-step SEM analysis.

In the IP model, there are 38 measure indicators, which are represented by 38 rectangles from the EFA outcomes. Therefore, the measurement (CFA) model for the existing IP QAEM constructs of NUC with the factor of were both significant has met the requirement and provide strong evidence for the convergent and discriminant validity as retreated by (Hair et al. (2006, Kline 2005, Bagozzi and Yi, J 1998). The reliability of Cronbach's alpha coefficient value exceeded the cutoff- point threshold of 0.70 as established by Hair et al, (2006), accordingly, the use of the summated score for each of the factors was justified. All the indicators were statistically significant for the existing QAEM constructs of NUC. The summated indicators were calculated by summing of averaging instruments with high loadings on the factors above the recommended threshold for the research (Hair et al., 2006).

The summated instrument's values were used to simplify the CFA of the measurement for the existing QAEM construct of NUC, which comprised the factors of IP. They are as follows: The IP unobserved factors of seven (7) sub – constructs of second-order factors comprised 38 first-order indicators, which now become 7 indicators with rectangle schematics from the EFA outcomes which formed the 7 indicator (observed) variables on the factors of IP, as shown in Figure 3 below.

Figure 3
The Conceptualized Seven (7) Factors Model for the Existing QAEM (IP)



5.3 Model Specification and Goodness- Of –Fit

The IP measures of interrelationship of 38 instruments were checked at the section of estimates of the AMOS 18.0 test output and thus established that the indices were statistically significant. The instruments indicated that there were no outliers in the instrument as a result of Mahalanobis distance were checked. The values of skewness and kurtosis were within the established threshold of negative and less than 0.1. Furthermore, the assumption of normality was checked by the application of AMOS 18.0 Version, and the findings revealed that the indices of skewness and kurtosis depicts that there was no severe violation of the normality assumption.

The seven (7) component's factors were derived from the results of the PCA were hypothesized as the latent variables of IP. A CFA was carried out to investigate the adequacy of the measurement of the existing Input process (IP) QAEM constructs of NUC. The measurement model was applied through Analysis of Movement Structures (AMOS) 18.0 version Arbuckle, (2008) on the dimensional factor of the IP to analysis the research data collected.

The results of the hypothesized measurement model, as displayed in Figure 3 encompasses the seven(7) unobserved (latent) variables loaded on 38 instruments (indicators) in Table 4. The internal consistencies of the 7 latent factors of IP were demonstrated in Figure 3 below 0.905, 0.910, 0.807, 0.981, 0.740, 0.850 and 0.900, based on the data collected.

The measurement model of the 7 observed variables specified that overall Goodness-of- fit of the model was DF (14), $\chi 2$ (313 .651, p = 000 which was statistically substantial, representing an insufficient GOF among the covariance matrix of the observed data, and this implied that covariance matrix and estimated procedure of the model satisfied the essential statistical distribution (Arbuckle and Wothke, 1999 and Marsh, Hau and Wen, 2004) of the existing IP QAEM constructs of NUC, and thus acknowledge the estimates of suitable properties of existing QAEM constructs of NUC.

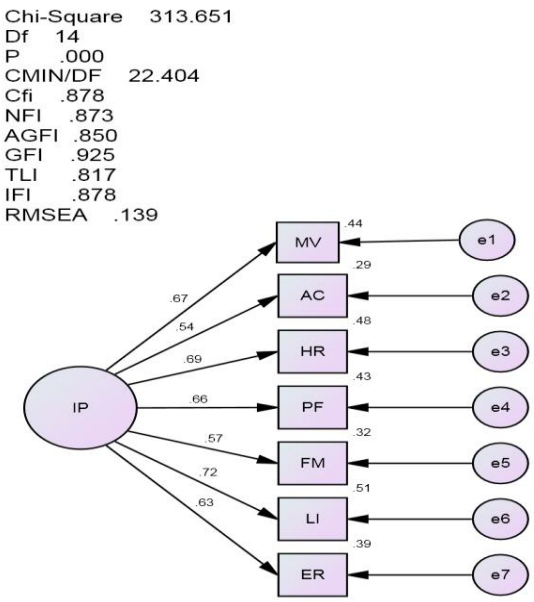
Supplementary indices of the model GOF was also used following the guidelines by the scholars (Byrne, 2010; Hair et al., 2010) whereby at least one absolute fit index and one incremental fit index be used in addition to the x2 statistics and the associated degree of freedom. The CFI was found to be .878, which is below the cutoff threshold value of 0.90 of indexes in Table 4. Nevertheless, the normed chi-square was DF (14), $\chi 2$ 313.651, which are

above the satisfied the acceptable of <- 3 cut-offs. Also, the NFI value for the hypothesized model was .873, P =.000, CMIN/DF = 22.404, AGFI=.850, TLI =.817, IFI = .878. It thus falls above the acceptable range of .90. The GFI = .925 which is the only fit indices within the acceptable value of cutoff threshold.

In addition, the loadings of the model ranged from .54 (AC) to .72 (LI), and were all statistically significant. Accordingly, the fit indices presenting the overall fit of the model were a bit encouraging as the normed chi-square and RMSEA .139 were found to be above their various acceptable limits range of .05 and .08 representing a good data-model fit. Both Table 4 and Figure 4 give detail of the outcomes of the model fit and the parameter estimate of the existing QAEM IP. The research required a more GOF; Post-Hoc model modification indices were examined in order to ascertain a more parsimonious alternative QAEM construct of NUC. Thus, the hypothesized model of QAEM was re- estimated for better GOF. One of the criteria is to eliminate the offending estimate from the model because of factorial complexity.

Also, the correlation between the (7) errors were freed based on the application of modification's index thus to improve the overall fit; the model misspecification can be identified using the modification indices. These were carried out through the application of AMOS, and the result indicated that the features' errors correlated indicated commonalities between pairs of the indicators' variable's structure model for the alternative QAEM constructs of NUC. Based on the above outcome the model failed to fit data based on the Chi-square yielded significant to the data. The evidence are $\chi 2$ (14) = 313.651, P = .000, CMIN/DF = 22.404 CFI, .878, NFI .873, AGFI .850, GFI .925, TLI .817, IFI .878 and RMSEA .139 which mean that we have to reject the hypothesis Hpo1 and revised the model for fitness.

Figure 4
The Results of the Conceptualized Seven (7) Factors Model for the Existing QAEM (IP)



5.4 Re-Specification and Goodness- Of –Fit

The result in Figure 4 above exhibited model-fit indices goes beyond the particular general acceptance levels recommended a guideline by earlier research, signifying that the model in this research exhibited a tolerable model-fit with the data collected. This measurement model was tested by employing CFA. The outcomes were inadequately insignificant. The loading for the initial model was shown to be more than the threshold value of RMSEA 0.139, as in Table 4 was not within the threshold values suggested by (Kline 2005, Bollen 1989 and hair et al. 2006). The initial model was re- specified in order to accomplish a best GOF model during the re- specification for the initial existing QAEM constructs of NUC; the following results were obtained. The GOF indices show that the overall fit for the re-specified model was steady with the data, the chi-square statistic was statistically significant (4) $\chi 2$ 282.684, p=0.000, denoting that there is the difference between the covariance matrix of the initial model data and the matrix of the re-specified mode DF (14- 10), $\chi 2$ (313.651- 30.967)= DF (4) $\chi 2$ 282.684 difference.

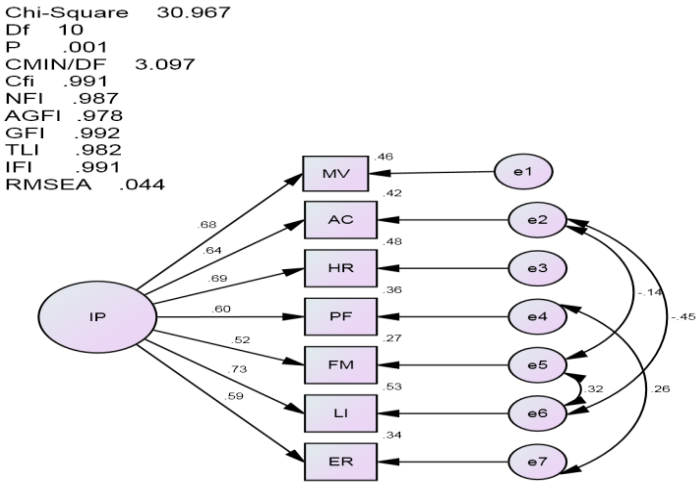
Nevertheless, the re-specified GOF of the indicators' data, as the value of the normed chi square (CMIN/DF) was 3.097, which is within the cut off endorsed by statisticians is <-3 for x2/df to reflect a good fit for the model (Hair et al 2010). Equally, the re-specified model based on the above outcome the model fit the data based on the Chi-square yielded non-significant to the data. The evidence is chi- square DF(10), $\chi 2$ 313.651, P = .001, CMIN/DF = 3.097, CFI, .991, NFI .987, AGFI .978, GFI .992, TLI .982, IFI. 991 and RMSE.044 which mean the hypothesis Hpo1 re - specification demonstrated the model for fitness. Hence all the fit indices were within the acceptable value of cutoff threshold and accept the hypothesis of the model. .Following the guidelines by the scholars (Byrne, et al 2010) as detailed in Figure 5. For this IP model (i.e. one latent constructs 38 indicators and 1600 sample size (n=1600), the IP are a good fitting model. Outcomes specified that the minimum was attained. In order to improve model fit, modification indices were examined for expected parameter change values, and those with the maximum values were supposed to be correlated. In a determination to improve model fit, modification indices were appraised for anticipated parameter change values. The values discovered that some of the error terms were correlated, and the model was modified to replicate these correlations.

The modification index (MI) is the projected drop in overall chip-square value if the parameter were to be freely estimated (MI = 0) in a subsequent run. Therefore, the following associations were made between the errors e2 and e5, e2 and e6, e4 and e7 and e5 and e7. Accordingly, AMOS only advocates adding covariance between the error terms the relations were acceptable to co-vary in order to reduce the total amount to DF (14), $\chi 2$ 30.967 and thus increase the GOF. This generated a model with the following indices: Chi- Square DF(10), $\chi 2$ 30.967, P = .000, CMIN/DF IN/DF = 3.097, CFI, .991, NFI .987, AGFI .978, GFI .992, TLI .982, IFI .991 and RMSEA .044. It thus specified that the model fit the data hence we accept the hypotheses 1of the model of research.

Consequently, with the application of re - specification, this resulted in an improvement of the model. The GOF indices in Table 4 established a satisfactory significant, and all are within the threshold values advocated by (Kline 2005, Bollen 1989 and Hair et al. 2006). Similarly, the factor loading for the existing QAEM constructs NUC is statically important. All the values of NFI, CFI, AGFI, GFI, TLI, IFI, RMSEA and the 90% confidence interval of RMSEA specified a rather good fit. Subsequently, the exclusion of the covariance estimates among existing QAEM latent constructs and the other four (4) constructs co-vary; all other parameter estimates examine were found to be statistically and substantially important as depicts in above Figure 4.

FIGURE 5

THE RESULTS OF THE RE-SPECIFICATION OF CONCEPTUALIZED SEVEN (7) FACTORS MODEL FOR EXISTING QAEM IP CONSTRUCTS



The outcomes signifying that the loading ranging from .54 (AC) to .72 (LI) for the initial model of IP and the re- specified result s shows. 52(FM and .73(LI). The alternative QAEM constructs of NUC were all free from any offending estimates and exhibited reasonable direction. The constructs internal consistency reliability of Cronbach's alpha coefficient value was found to be tolerable Figure 5.3 below depicts details of it.

Table: 4

Goodness-Of-Fit Measures of a Model, Recommended Guidelines and Indices Values Model Specification Measurement for the Existing IP QAEM Constructs

FIT INDICES		MODIFICATION	RE-MODIFICATION
		IP	IP
Chi-Square(χ2/)	P= 0.01	313.651	30.967
Degree of Freedom(df)		14	10
Relative Likelihood Ratio χ2/cmin/df	≤ 3 to 5	22.404	3.097
P. Value	≥ 0.90 or above	.000	.000
Comparative Fit Index(CFI)	≥0.90 or above	.878	.991
Normed Fit Index (NFI)	≥ 0.90 or above	.873	.987
Adjusted Goodness-of-Fit Index(AGFI)	≥ 0.90 or above	.850	.978
Goodness- of- Fit Index(GFI)	≥ 0.90 or above	.925	.967
Tucker- Lewis Index(TLI)	≥0.90 or above	.817	.982
Incremental Fit Index(IFI)	≤ 0.50 to 0.80	.878	.991

Root Means Square Error of Approximation(RMSEA)	P= 0.01	.139	.044

Chi-Square(χ2/),Degree of Freedom(df) , Relative Likelihood Ratio χ2/df, P. Value , Comparative Fit Index(CFI) , Normed Fit Index (NFI), Adjusted Goodness-of-Fit Index(AGFI), Goodness- of- Fit Index(GFI), Tucker- Lewis Index(TLI), Incremental Fit Index(IFI), Root Means Square Error of Approximation(RMSEA)

The robust loadings of its seven indicators, established the satisfactory and utmost importance for the existing IP QAEM latent constructs of NUC with more than the thresholds value of 0.5 endorsed by (Kline, 2005, Hair et al., 2006). Furthermore, more, the squared multiple correlations (SMC) for the existing IP QAEM constructs of NUC show that the seven indicators variables' outcomes range from .29 (AC) to .51(LI) the model specification while the re-specified indicated that .27(FM.53(LI) respectively. Thus, this established a satisfactory value to explain the variance in the 7 indicators variables.

6. Conclusion and Recommendation

In general, this particular chapter explains the research methodology with survey design employed(cross-section and explanatory), research development process, instrumentation, population and sampling (design, size, procedures and sampling frame), data collection process, data screening process, data analyses process and the conclusion. This chapter also discusses the survey instruments formats. The validity and reliability Cronbach's alpha of the dimensional factors (constructs) are as well discussed and the pretest of the survey instruments. The study also used Structural Equation Modeling as statistical methods for the research and the application of the ten model-fit criteria to be applied.

Finally, future QA is based on the relevance to the future education quality. The future education quality is seen as the relevance of education to the future needs of individual and the community to meet the coming challenges in the new millennium. Hence, efforts in ensuring the relevance of the aims, contents, practices and outcome of education to the future of new generation in a new era (Yin Cheng 2003). The above explanations on education quality reforms of Yin Cheng, (2000) thus represent different views in conceptualization and assurance of education effectiveness and quality. The research measurement indicators of various quality dimensions should be taken as a fundamental issue in university education by applying the right survey instrument that can usher in change and innovation through the government, policy maker, stakeholder in education. However, leadership management of the institution is very important in the education quality of institutions.

From the above using this model in this research education quality can be enhanced if the university administrators can smooth the internal process and successively provide fruitful learning experiences to the relevant stakeholders. This is very relevant to university educational institution when there is a clear relationship between process and educational outcomes. Chen and Tam (1997) indicate that the indicators for the process model of education quality include leadership, participation, social interactions, classroom climate, learning activities and experiences. Hence, QAEM comprised the existing Academic Minimum Criteria for accreditation and the two proposed evaluation criteria to be used in accreditation of academic programs in HEIs Nigerian. In this part, the research highlighted the role of Input Process, in growing a vision for quality assurance and also in improving effectiveness in university Nigerian. Consequently, although every model cited in the subsequent part of this research has its own distinctive viewpoint on educational quality assurance in a university, it is dynamic to analyze them more carefully to see if they can be defined by a standard model for QAEM, which can be adopted and modified to suit this research through validation of the measurement instrument scales. With the institution, variety

of main points - issues that have recognized a frequent magnitude - give the concept to become known from the models: staff and student's knowledge and a vibrant physical facility, resources, input process, leadership management commitment in caring out their duties base for the mission, vision and goals of institutions in cooperation of an employee around it. Subsequently, some of this gabs can be addressed in other remedies the short-coming of some of the studies.

However, the entire the models have a common thrust on validation of the existing for NUC accreditation instruments to be used to accredit academic programs and how it affects learning experience and also collaboration at the education delivery level, when one makes judgments on the subject of quality assurance. Thus, the important highlighting is on development control and continuous enhancement, which are some of the key characteristics for successful organization. From the above the research is of the view that application of the above in relation to university educational institution's criteria for accreditation of academic programed, restructuring of curriculum, criteria for admission, ranking of the institutions and management of the institutions will have a positive impact in quality delivery of the service provided by the institutions and will increase productivity and efficiency.

7. Future Recommendations

This research is subject to several limitations, which needed to be noted apart from the normal limitations associated with survey research. However, the limitations of this research need to be considered. Although this research offers a preliminary attempt to explore and validate existing QAEM (IP) constructs of NUC accreditation instrument's initiatives on improving the quality assurance performance of universities, some caution should be exercised when interpreting the results. The research sample was confined and carried out in university educational institutions setting in the North Central Geo-Political Zone of Nigeria (only in one particular region of the country). Thus, the research was limited to university administrators, management teams, NUC, dean/ directors, Hods, academic staff, non-teaching staff and students who tend to make generalizations difficult. Hence the result cannot be generalized to other educational settings in the remaining five Geo-Political Zone of the country, but NUC can make use of the instruments since NUC is the accrediting body controlling the university educational institution in Nigeria. Based on the outcomes of the data analysis, the existing QAEM constructs NUC is a be - fitting model. Therefore, this is the first ever research in the history university educational institutions in Nigeria to applied psychometric properties in validating and testing the accreditations instruments with series measurement model.

Besides, the data used for the research are from university educational institutions in Nigeria, hence, given the dearth of research university educational institutions in developing countries, further research in the area of cross-national comparisons of universities from other developing countries, and consequently, it could be anticipated that outcomes may be diverse in other countries. Therefore, the outcomes could then be compared with the results of the present research. The construct for the alternative QAEM constructs of NUC accreditation instruments proposed in this research is represented by three unobserved variable's IP. Finally, the research model and existing QAEM constructs of NUC instrument presented in this research have implications for researchers, government, NUC, stakeholders, university administrators, and faculty. For researchers in education, the model presents a new way of conceptualizing IP QAEM constructs of NUC quality of university educational institution in Nigeria.

Acknowledgement

This paper is under sponsorship of the university.

References

Abdullah, F. (2006) Measuring Service Quality in Higher Education: HEdPERF versus SERVPERF. Marketing Intelligence and Planning, 24(1), 31-47.

Al-Turki, U. and Duffuaa, S. (2003) Performance Measures for Academic Departments. International Journal of Educational Management, 17(7), 330-338.

Aly, N. and Akpovi, J. (2001) Total Quality Management in California Public Higher Education. Quality Assurance in Education, 9(3), 127-131.

Arif, M. and Smiley, F. (2004) Baldridge Theory into Practice: a working model. International Journal of Educational Management, 18(5), 324-328.

Badri, M. and Abdulla, M. (2004) Awards of Excellence in Institutions of Higher Education: an AHP approach. International Journal of Educational Management, 18(4), 224-242.

Borahan, N. G. and Ziarati, R. (2002) Developing Quality Criteria for Application in the Higher Education Sector in Turkey. Total Quality Management, 13(7), 913-926.

Becket, N. and Brookes, M. (2006) Evaluating Quality Management in University Departments. Quality Assurance in Education, 14(2), 123-142.

Balzarova, M. A., Bamber, C. J., McCambridge, S. and Sharp, J. M. (2004). Key success factors in implementation of process-based management: A UK housing association experience. Business Process Management Journal, 10(4), 387–399.

Telford, R., and Masson, R. (2005). The congruence of quality values in higher education. Quality Assurance In Education, 13(2), 107-119.

Mackay, S. and Stockport, G. J. (2006). Blended learning, classroom and e-learning. The Business Review, 5(1), 82-88.

Brookes, M. and Becket, N. (2007) Quality Management in Higher Education: a review of international issues and practice. International Journal of Quality and Standards, Paper 3, 1(1).

Carlsson, M. and Carlsson, D. (1996). Experiences of implementing ISO 9000 in Swedish industry. International Journal of Quality & Reliability Management, 13(7), 36-47.

Calvo-Mora, A., Leal, A. and Roldan, J. (2006) Using Enablers of the EFQM Model to Manage Institutions of Higher Education. Quality Assurance in Education, 14(2), 99-122.

Chen, S., Yang, C. and Shiau, J. (2006) The Application of a Balanced Scorecard in the Performance Evaluation of Higher Education. TQM Magazine, 18(2), 190-205.

Chen, S. H., Lin, H. T., and Lee, H. T. (2004). Enterprise partner selection for vocational education: Analytical network process approach. International Journal of Manpower, 25(7/8), 643-655.

Cheng, Y and Tam, W (1997) Multi-Models of Quality in Education. Quality Assurance in Education, 5(1), 22-31.

Cruickshank, M. (2003) Total Quality Management in the Higher Education Sector: a literature review from an international and Australian perspective. TQM and Business Excellence, 14(10), 1159 -1167.

Cullen, J., Joyce, J., Hassall, T. and Broadbent, M. (2003) Quality in Higher Education: from monitoring to management. Quality Assurance in Education, 11(1), 5-14. doi:10.1108/09684880310462038

Deming, W. E. (1993) The New Economics for Industry, Government, Education. Cambridge, MA: Massachusetts Institute for Technology, Center for Advanced Engineering Study.

Dollery, B., Murray, D. and Crase, L. (2006) Knaves or Knights, Pawns or Queens? An evaluation of Australian higher education reform policy. Journal of Educational Administration, 44(1), 86-97.

Elton, L. (1992) Quality Enhancement and Academic Professionalism. The New Academic, 1(2), 3-5.

Eriksen, S. D. (1995) TQM and the Transformation from an Elite to a Mass System of Higher

Education in the UK. Quality Assurance in Education, 3(1), 14-29.
Ford, J., Joseph, M. and Joseph, B. (1999) Importance-Performance Analysis as a Strategic Tool for Service Marketers: the case of service quality perceptions of business students in New Zealand and the USA. Journal of Services Marketing, 13(2), 171-186.
Garvin, D. A. (1987) Competing on the Eight Dimensions of Quality. Harvard Business Review, 65(6), 101-109.
Grant, D., Mergen, E. and Widrick, S. (2004) A Comparative Analysis of Quality Management in US and International Universities. Total Quality Management, 15(4), 423-438
Harvey, L. (1995) Beyond TQM. Quality in Higher Education, 1(2), 123-146.
Harvey, L. and Knight, P. T. (1996) Transforming Higher Education. Buckingham: SRHE and the Open University Press.
Harvey, L. (2005) A History and Critique of Quality and Evaluation in the UK. Quality Assurance in Education, 13(4), 263-276.
Haworth, J. and Conrad, C. (1997) Emblems of Quality in Higher Education. Developing and Sustaining High Quality Programs. Needham Heights: Allyn & Bacon.
HEFCE (2005/35) Review of the Quality Assurance Framework. Bristol: HEFCE.
Hewitt, F. and Clayton, M. (1999) Quality and Complexity – lessons from English higher education. International Journal of Quality & Reliability Management, 16 (9), 838-858.
Hides, M., Davies, J. and Jackson, S. (2004) Implementation of EFQM Excellence Model self – assessment in the UK Higher Education Sector – lessons learned from other sectors. TQM
Jackson, N. (1997) Internal Academic Quality Audit in UK Higher Education. Part II: Implications for a national quality assurance framework. Quality Assurance in Education, 5(1), 46-54.
Jackson, N. (1998) Internal Academic Quality Audit in UK Higher Education. Part III: The idea of 'partnership in trust'. Quality Assurance in Education, 6(1), 37-46.
. Lawrence, J. and McCullough, M. (2001) A Conceptual Framework for Guaranteeing Higher Education. Quality Assurance in Education, 9(3), 139-152.
McAdam, R. and Welsh, W. (2000) A Critical Review of the Business Excellence Quality Model Applied to Further Education Colleges. Quality Assurance in Education, 8(3), 120-130.
Becket and Brookes (2008) Quality Management Practice in Higher Education – What Quality Are We Actually Enhancing.
Milliken, J. and Colohan, G. (2004) Quality or Control? Management in higher education. Journal of Higher Education Policy and Management, 26(3), 381-391.
Mizikaci, F. (2006) A Systems Approach to Programme Evaluation Model for Quality in Higher Education. Quality Assurance in Education, 14(1), 37-53.
Mok, K. (2005) The Quest for a World Class University. Quality Assurance in Education, 13(4), 277-304.
Motwani, J. and Kumar, A. (1997) The Need for Implementing Total Quality Management in Education. International Journal of Educational Management, 11(3), 131-135.
OECD (2006) Education Policy Analysis – Focus on Higher Education. Paris: OECD Publications.
Oldfield, B. and Baron, S. (1998) Is Services cape Important to Student Perceptions of Service Quality? Research Paper, Manchester Metropolitan University.
Osseo-Asare Jr, A. and Longbottom, J. (2002) The Need for Education and Training in the Use of the EFQM Model for Quality Management in UK Higher Education Institutions. Quality Assurance in Education, 10(1), 26-36.
Owlia, M. and Aspinwall, E. (1996) A Framework for the Dimensions of Quality in Higher Education. Quality Assurance in Education, 4(2), 12-20.

Park, D. J., Kim, H. G., Kang, B. H. and Jung, H. S. (2007). Business values of ISO 9000: 2000 to Korean shipbuilding machinery manufacturing enterprises. International Journal of Quality & Reliability Management, 24(1), 32-48.

Fuentes, C. M., Benavent, F. B., Moreno, M., Cruz, T. G. and Val, M. P. (2000). Analysis of the Implementation of ISO 9000 quality assurance systems. Work Study, 49(6), 229-241.

Pounder, J. (1999) Institutional Performance in Higher Education: is quality a relevant concept? Quality Assurance in Education, 7(3), 56-163.

QAA (2006) Handbook for Institutional Audit: England and Northern Ireland. Gloucester: QAA.

Ramsden, P. (1992) Learning to Teach in Higher Education. New York, Routledge.

Reid, K. and Ashelby, D. (2002) The Swansea Internal Quality Audit Processes: a case study. Quality Assurance in Education, 10(4), 237-245.

Roberts, P. and Tennant, C. (2003) Application of the Hoshin Kanri Methodology at a Higher Education Establishment in the UK. TQM Magazine, 15(2), 82-87.

Roffe, I. (1998) Conceptual Problems of Continuous Quality Improvement and Innovation in Higher Education. Quality Assurance in Education, 6(2), 74-82.

Sahney, S., Banwet, and Karunes, S. (2004) Conceptualizing Total Quality Management in Higher Education. TQM Magazine, 16(2), 145-159.

Sohail, M., Daud, S. and Rajadurai, J. (2006) Restructuring a Higher Education Institution: a case study from a developing country. International Journal of Educational Management, 20(4), 279-290.

Srikanthan, G. and Dalrymple, J. (2002) Developing a Holistic Model for Quality in Higher Education. Quality in Higher Education, 8(3), 216-224.

Srikanthan, G. and Dalrymple, J. (2003), "Developing alternative Perspectives for Quality in Higher Education", The International Journal of Educational Management, Vol. 17, No. 3, pp. 126-36

.Srikanthan, G. and Dalrymple, J. (2004) A Synthesis of a Quality Management Model for Education in Universities. International Journal of Educational Management, 18(4), 266-279.

Tam, M. (2002) University Impact on Student Growth: a quality measure? Journal of Higher Education Policy and Management, 24(2), 211-218.

Tam, M. (2006) Assessing Quality Experience and Learning Outcomes. Part I: Instrument and analysis. Quality Assurance in Education, 14(1), 175-87.

Tari, J. (2006) An EFQM Model Self-Assessment Exercise at a Spanish University. Journal of Educational Administration, 44(2), 170-188.

Temponi, C. (2005) Continuous Improvement Framework: implications for academia. Quality Assurance in Education, 13(1), 17-36.

Tierney, W. (1998) The Responsive University: Restructuring for High Performance. Baltimore: The Johns Hopkins University Press. Journal of Hospitality, Leisure, Sport and Tourism Education 7(1), 40 – 54 49

Green, D. (Ed.).(1994).what is Quality in higher Education? Buckingham: SHRE & open University press. Adedipe, N. O. (2007). University quality assurance, funding strategy and task allocation. A paper presented at the workshop on tertiary education financing, university of Lagos, April 23 – 24.

Adegbite JGO (2007). The Education Reform Agenda: Challenges for tertiary education administration in Nigeria; being a paper presented at the sixth annual seminar of the Conference of Registrars of Colleges of Education in Nigeria (South West Zone) at the College of Education, Ikere-Ekiti, Ekiti State.

Adesola, A. O. (1991). The Nigerian university system: Meeting the challenges of growth in a

depressed economy. Higher Education.
Adeyemi, K. (1990). An analysis of the supplemental sources of financing higher education in a developing country: A case of Nigerian universities. Educational Planner,
Adeyemi, K., and Akpotu, N. (2004). Gender analysis of student enrollment in Nigerian niversities. Higher Education,
Adeyemi, T. O. (2008). Organisational climate and teachers' job performance in primary schools in Ondo state Nigeria: An analytical survey, Asian Journal of Information Technology, 7, (4), 138-145.
Ahire, S.L. and O'Shaughnessy, K.C. (1998), "The role of top management commitment in qualitymanagement: an empirical analysis of the auto parts industry", International Journal of Quality Science, Vol. 3 No. 1, pp. 5-37
Ahire, S.L., Golhar, D.Y. and Waller, M.A. (1996), "Development and validation of TQM implementation constructs", Decision Sciences, Vol. 27 No. 1, pp. 23-56.
Ajayi IA, Ayodele J.B. (2004). Fundamentals of educational management. Ado-Ekiti: Green Line Publishers. Ekundayo and Ajayi 347 Akindutire IO (2004).Administration of higher education. Lagos: Sunray Press.
Ajayi IA, Ekundayo HT (2006). Funding initiatives in university education in Nigeria. Being a paper presented at the national conference of Nigerian Association for Educational administration and Planning [NAEAP]. Enugu State University of Science and Technology, Enugu State.
Ajayi, T. (1997). Maintenance of Academic standards in Nigerian Schools. Some basic Planning Consideration. In Ejiogu A.M. and Ajayi, K (Eds) Emergent Issues in Nigerian.````````
Olusola,O. (2010), Quality Assurance System in Higher Education. African Union Commission Addis Ababa. NUC/AAU workshop on Institutional Quality Assurance, 6-9 April.
Gro¨nroos, C. (1984), A service quality model and its marketing implications", European Journal of Marketing, Vol. 18 No. 4, pp. 36-44.
Harvey, L. (2004), "The power of accreditation: views of academics", in Nauta, P.D., Omar, P.-L., Schade, A. and Scheele, J.P. (Eds), Accreditation Models in Higher Education: Experienceand Perspectives, ENQA Workshop Reports No. 3, European Network for Quality Assurance in Higher Education, Helsinki..
Sureshchandar, G.S., Rajesndran, C., and Kamalanabhan, T.J. (2001), "Customer perceptions of service quality: a critique", Total Quality Management , Vol. 12 No. 1, pp. 111- 24.
Becket and Brookes (2008) Quality Management Practice in Higher Education – What Quality Are We Actually Enhancing? Journal of Hospitality, Leisure, Sport and Tourism Education 7(1), 40 – 54 50.
Mustafa, S.T. and Chiang, D. (2006), "Dimensions of quality in higher education: how academic performance affects university students' teacher evaluations", Journal of American Academy of Business, Vol. 8, pp. 294-303.
Tabachnick BG, Fidell LS. (2007). Using multivariate statistics. U.S.A. Allyn and Bacon.
Tabachnick, B.G. and Fidell, L.S. (2001), Using Multivariate Statistics, 4th ed., Allyn & Bacon, Needham Heights, MA.
Srikanthan, G. and Dalrymple, J.F. (2007), "A conceptual overview of a holistic model for quality in higher education", International Journal of Educational Educatioanl and Human Services Evaluation. Boston: Kluwer Nijhoff..
Sila, I. and Ebrahimpour, M. (2005), "Critical linkages among TQM factors and business results", International Journal of Operations & Production Management, Vol. 25 No. 11, pp. 1123-55 .
Osseo-Asare, A.E., Longbottom, D. and Chourides, P. (2007), "Managerial leadership for total quality improvement in UK higher education", The TQM Magazine, Vol. 19, pp. 541-60

Sila, I. and Ebrahimpour, M. (2005), "Critical linkages among TQM factors and business results", International Journal of Operations & Production Management, Vol. 25 No. 11, pp. 1123-55

Ramon-Yusuf, S. (2003) The role of the National Lagrosen, Y. and Lagrosen, S. (2005), "The effects of quality management – a survey of Swedish quality professionals", International Journal of Operations & Production Management, Vol. 25 No. 10, pp. 940-52

Odebiyi, A. and Aina, O. I. (1999). Alternative Modes of Financing Higher Education in Nigeria and Implications for University Governance. Research report. Accra, Ghana: Association of African Universities

Hairuddin et.al, (2007). Quality monitoring of the strategy leadership. Style for Malaysian National primary School (NPS).Heads involved in the School improvement programme

Okojie, J. (2008). NUC Briefing document for the Honourable Minister of Education. Abuja: NUC.

Okojie, JA. (2007). Higher education in Nigeria. Being a paper presented at Education in Africa Day, held at house of commons palace of Westminster, London. Retrieved from http://ww.nucnigeriainfo/es% 20houseof commons.ppt

Okebukola, P. (2003). Issues in funding university education in Nigeria. Monograph Series Vol. 1, No. 7. Abuja, Nigeria: National Universities Commission.

Okebukola, P. (2010), Methodologies for Institutional Self-Assessment.NUC/AAU workshop on Institutional Quality Aurance, 6-9 April.

National Universities Commission (1989) Approved MinimumAcademic Standards Documents , Abuja, July, 1989.

National Universities Commission (Amendment Decree No. 49, 1988). National Universities Commission at (1992).A publication of National Universities Commission.

Joreskog, K. G. and Sorbom, D. (1978) Analysis of linear structural relationships by method of maximum likelihood (Chicago, IL, National Educational Resources

Malhotra, N.K (2007), Marketing research: an application orientation (Fifth Edition), Pearson Prentice Hall, New Delhi

Waheed Afzal, ,, Aneela Akram, , Muhammad S. Akram and Aamir Ijaz (2010) on students' perspective of quality in higher education International Conference on Assessing Quality in Higher Education, 6 – 8 December, , Lahore – Pakistan

Mackay, S. & Stockport, G. J. (2006). Blended learning, classroom and e-learning. The Business Review, 5(1), 82-88.

Moskal, P., Dziuban, C., Upchurch, R., Hartman, J., and Truman, B. (2006). Assessing online learning: What One university learned about student success, Persistence, and satisfaction. Peer Review, 8(4), 26-29.

Peer Review, 8(4), 26-29. Malhotra, N.K (2007), Marketing research: an application orientation (Fifth Edition), Pearson Prentice Hall, New Delhi

Widrick, S., Mergen, E. and Grant, D. (2002) Measuring the Dimensions of Quality in Higher Education. Total Quality Management, 13(1), 123-131.

Wiklund, H., Wiklund, B. and Edvardsson, B. (2003) Innovation and TQM in Swedish Higher Education Institutions – possibilities and pitfalls. TQM Magazine, 15(2), 99-107.

Yorke, M. (1999) Assuring Quality and Standards in Globalised Higher Education. Quality Assurance in Education, 7(1), 14-24.

Cohen, P. A. (1981). Student ratings of instruction and student achievement: A meta-analysis of multisection validity studies. Review of Educational Research, 51 , 281-309.

Feldman, K. A. (1989). The association between student ratings of specific instructional dimensions and student achievement: Refining and extending the synthesis of data from multisession validity studies. Research in Higher Education, 30, 583-645.

Joreskog, K. G., and Sorbom, D. (1993). Lisrel 8: Structural Equation Modeling with the

SIMPLIS Command Language Lawrence Erlbaum Associates Inc.
Kelly, H. F., Ponton, M. K., and Rovai, A. P. (2007). A comparison of student evaluations of teaching between online and face-to-face courses. Internet and Higher Education, 10 , 89-101
Bagozzi, R. P., and Phillips, L. W. (1982). Representing and Testing Organizational Theories: A Holistic Construal Administrative Science Quarterly, 27 (3), 459-489.
Bangert, A. W. (2006). The Development of an Instrument for Assessing Online Teaching Effectiveness. Journal of Educational Computing Research, 35 (3), 227-243
Bangert, A. W. (2006). The Development of an Instrument for Assessing Online Teaching Effectiveness. Journal of Educational Computing Research, 35 (3), 227-243
MacCallum, R.C., Widaman, K.F., Zhang, S. and Hong, S. (1999). Sample size in factor analysis. Psychological Methods, 4, 84-99
Parasuraman, A., Zeithaml, V. & Berry, L., (1994). Moving forward in Service Quality research: measuring different levels of customer expectations, comparing alternative scales, and examining the performance-behavioral intentions Link. Marketing Science Institute working paper, Report No. 94-114 September 1994.
Marsh, H.W., Balla, J.R. and McDonald, R.P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: the effect of sample size. Psychological Bulletin, 103 , 391-41 0
Fan, X. and Sivo, S.A. (2007). Sensitivity of fit indices to model misspecification and model Types. Multivariate Behavioral Research. 42 , 509-529
Edward, S. (2002). Total quality management in education. VA, U.S: Stylus publishing.
Kang, G., and Jeffrey J., (2004). Service quality dimensions: an examination of Gronroos's service quality model. Managing service quality, Vol. 14, No.4, 2004, PP 266-277: Emerald group publishing.
Cronin, J., and Taylor, S. (1994). SERVPERF versus SERVQUAL: Reconciling performance based and perceptions minus performance measurements of service quality. Journal of Marketing, 58(1), 125–131