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QUALITY EVALUATION OF TEACHING AND LEARNING IN HIGHER EDUCATION IN NIGERIA

BY

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DEDICATION

This thesis work is dedicated to the person of the trinity; God Almighty, the creator of the heavens and the earth, Jesus Christ my savior and the Holy Spirit, my ultimate source of wisdom. To him be all the glory, the honour and the adoration for ever, Amen.

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ABSTRACT

It has been argued that the ways students perceive and experience aspects of their courses and learning environment exerts a long pull on their satisfaction with their courses and the learning or skills that results, hence their evaluation of quality of their experiences. It follows therefore that, if students must get the best out of their courses, the quality of aspects of their courses and learning environment viz-a-viz the quality of teaching and learning must be evaluated regularly and consistently.

Similarly, If students are to appreciate the quality of education they receive, they must be allowed to evaluate the quality of their experiences since they are the active recipients of teaching and learning.

Quality in higher education in Nigeria has been challenged both directly and indirectly by individuals and bodies that are concerned with the employment of graduates of higher institutions in the Nigerian labor market. It has also been purpeted that the quality of student's experiences of aspect of their courses and their learning environment is detororiating and is not the same all over the Nigerian Higher Institutions (Alonge, 2005).

This research work therefore, focused mainly on carrying out an evidence research- based quality evaluation of teaching and learning via student's evaluation of the quality of aspects of their course experiences and learning environments in the Nigerian higher institutions, especially the university institutions; in order to substantiate and ascertain the above claims. Students evaluated the quality of their course experiences and learning environments based on a five point-scale measurement of the student's level of agreement with some statements concerning the quality of their course experiences and learning environment using the Student Course Experience Questionnaire (SCEQ) which we developed according to the style of questions found in Ramsden (1991).

The instrument is made up of a total of 61 items spread over nine (sub-scales): Clear goals, Course level materials and facilities, good teaching, emphasis on independence, appropriate workload, appropriate assessment, surface learning strategy, deep learning strategy, generic skills and finally, overall satisfaction with course. The sub-scales were further categorized in to three major dimensions of intended curriculum, curriculum in action and learned curriculum. A total of 2,221 students (response rate of 65.3%) evaluated the instrument from 17 universities selected at random all over the six geopolitical zones of Nigeria; comprising of both federal, state and private universities; representing 18.5% of total universities in Nigeria as at 2008.

Reliability analysis using cronbach's alpha coefficient and exploratory factor analysis were carried out on the items and scales of the instrument. Results showed item cronbach's alpha coefficient of 0.81 and exploratory factor analysis revealed a sructure and characteristics that are consistent with those of Ramsden (1991) and Wilson et al. (1997); confirming the reliability of the instrument as an educational evaluation instrument.

Furthermore, some analysis of variance were carried out using SPSS statistical package to ascertain some variations and relationships. Significant variation in student's evaluation of quality of their experiences of aspects of their courses and learning environments were found across university types, across gender, across university generation, across course of study and across level of studies in almost all the sub-scales and dimensions; Confirming the claim that quality of education in higher institutions in Nigeria is un-stable and it varies across the universities.

Results based on this study further revealed that Students who perceived their courses and learnig environment most favorably adopted a deep learning strategy and students who perceived their courses and learning environment less favorable adopted a surface learning strategy.
Also, the more favorable student's perceived the aspect of their courses and learning environment, the better they are likely to acquire general skills.
Finally, Students who perceived their courses and learning environment most favorable were more satisfied with their courses and those who perceived their courses and learning environment less favorable were less satisfied with their courses.

Based on the results of this study, we recommended that an independent educational body should be formed in Nigeria, solely for making sure that student's evaluation of the aspects of their courses and learning environments be administered on a standard national periodic basis to gather data that will provide higher institutions with a system wide information for managerial judgments about the quality of the courses they are offering. Such data can be put in a form that can be readily used for higher education consumer judgments of quality, course quality for government and funding agencies, for prospective students and employers of graduates.

Finally, thoughts for possible future research is the possibility of transforming and linking the student's course evaluation questionnaire used in this study to a tool for total quality evaluation in the education system, just as it is the practice in companies and industries.

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CHAPTER ONE

1.1 Introduction

In the past few years many countries have witnessed significant transformation and reforms in their higher education systems, including emergence of new types of institutions, changes in patterns of financing and governance, the establishment of evaluation and accreditation mechanisms, curriculum reforms, and technological innovations. But the tertiary education landscape is not changing as fast everywhere (Salmi, 2001)

Education is seen as the strong backbone and the central nervous system for human and capital development of every nation. The highly technological world today is geared towards change, and such change can only be achieved through the dissemination of the right knowledge and skills; all these are possible through a good and qualitative education.

The major social and economic changes occurring in every nation influences the creation and development of both public and private educational institutions at all levels of education; so as to cope with the fast growing world of knowledge. But the great question still remains that, how qualitative are these educational institutions? How qualitative are the programmes and services rendered by these educational institutions? How qualitative are the skills and knowledge obtained from these institutions as a result of teaching and learning? Members of the society, who are the users of these educational services, expect to have highly qualified specialists, who can promote the nation's economic growth. Another important question is that, how can this expected quality be achieved and controlled or evaluated in order to meet this demands of the society? What are the factors militating against the achievement of these expected quality especially in the area of teaching and learning? Is the teaching received by students actually adding values to the learning resulting from it in every educational institution? Are students satisfied with the quality of teaching and learning received? How do students perceive the quality of teaching and learning they receive? What factors are

associated with good teaching? Do these factors associate or influence learning strategies adopted by students? Who is responsible for the quality of good teaching and learning in these institutions at large; is it the institution managements, the teachers or the students themselves?

In an attempt to answer these worrisome question and the likes, many papers and journals like; Richardson and John (1994), Wilson et al. (1997), Avdjieva and Wilson (2002), Borahan and Ziarati (2002), Brooks (2002), Colling, and Harvey (1995), Cullen and Joyce (2003), Eriksen (1995), Harvey (1995), Harvey and Knight, (1996), Harwell, Herrick, Curtis, Mundfrom, and Gold, (1996) explore the development, evaluation, quality control, quality assurance and quality assessment of higher education and application of the (course experience questionnaire) evaluation in general, by setting out statistical methods to evaluate and compare qualitative and quantitative factors among educational institutions, especially that of the higher education.

The development of "performance indicators", like those of the Organization for Economic Cooperation and Development (OECD), (UNESCO), and the Southern and Eastern Africa Consortium for monitoring Educational Quality (SACMEQ) is part of an attempt to introduce accountability and assessment of quality in the public sector activities, especially that of education, which is very vital.

The above bodies have been active in developing educational performance indicators for national systems, which includes measurement of student's educational achievement and the factors that can be related to those performances. These performance indicators are shown to be complementing similar indicators at the institutional levels within a nation and so it is equally possible to use the test scores and examination results as data for institutional studies.

In their paper, Harry and David (1996) focused on statistical methodology and although they offered suggestions about appropriate ways of modeling and interpreting performance indicator data, their principal objective was to open up a discussion of the issues rather than to prescribe specific solutions. In his paper, Ramsden (1991) outlined the development of a student course experience questionnaire used as a performance indicator of teaching quality in higher education; which was found to be a reliable, verifiable and useful

means of determining the perceived teaching quality of academic units in systems of higher education that are based on British models. In its general form, performance indicator is a statistical measurement of an institution, which is intended to relate to the "quality "of its functions.

Avdjieva and Wilson, (2002) suggested that in order to achieve the goal of evaluating quality in higher education, higher education institutions as organizations of learning are required to be learning organizations where internal stakeholders also interpret and assess the quality of higher education provision through the introduction or adoption of Total Quality management (TQM). However, critics of the above approach suggest that a wholesale adoption of total quality management (TQM) without adaptation to reflect the particular characteristics of higher education is unacceptable (see for instance, Yorke, 1994). It has even been purported that the practice of total quality management in higher education is deteriorating in to managerialism because of the disparity between total quality management (TQM) techniques and educational processes, as well as the lack of shared vision within institutions or educational fields.(Srikanthan and Darlyrymple, 2003). Despite the progress made through research and debates, there is still no universal consensus on how to best manage, evaluate and control quality within higher education.

Many educational institutions and bodies in developed countries like the (OECD) countries have set up a lot of performance indicators such as management and organization, teaching and learning, support for students, attainment and achievement e.t.c. in order to build and monitor total quality in their education systems. There are also many theories about evaluation of education and much more about schools evaluation based on these indicators, but in this thesis and from our own point of view, we strongly believe that "Teaching and learning" are the best keys that evaluates and controls the quality of educational institutions and processes by a factor of at least above 90 percent. As a result, factors that relate to or associated with the quality of teaching and learning are worth exploring in this study.

In Nigeria in particular, there are particular environmental forces imposing the need for effective and qualitative teaching and learning. These include:
- A growing climate of increasing accountability and expansion in the size of student populations

- An increasingly diverse student population as a result of widening participation initiatives and targeting international markets
- Diminishing resources by which to deliver programs of study
- Great expectations of students as paying customers
- More flexible educational provision at both undergraduate and post graduate level
- An increase in collaborative provision between institutions.

Some of these forces demand that institutions have quality assurance procedures that are both rigorous and transparent to external stakeholders. Others however, clearly require that quality enhancement initiatives are firmly embedded in to any quality management programme, and the continual efforts made to enhance quality provision.

The issue of quality, especially of teaching and learning in Nigerian higher institutions is becoming a topic of great concern now, for example, public and private employers of university graduates, as well as the government itself, considers the quality of knowledge and skills acquired by university graduates inadequate. A study of the labor market for graduates conducted in the year 2000, found out that employers believe that "university graduates are poorly trained and unproductive on the job... and shortcomings are particularly severe in oral and written communication, and in applied technical skills (Dabalen, Oni and Adekola, 2000).

In the 1986 national policy for science and technology, the issue of scientific and technological manpower development was addressed by emphasizing science and technology at all levels of the nation's educational system in Nigeria through the offer of special incentives to individuals engaged in science and technology endeavor. Also, considering One of the educational objectives of Nigeria, as spelled out in section 55, (a-b) of the national policy on education (revised) 1998 and section 18 subsection 1-3 of the 1999 constitution which states that, Government shall promote science and technology in all levels of education, especially the public higher education, through the devotion of greater proportion of expenditure for the implementation of procedures that will give preference to the acquisition of the right skills and knowledge in the area of science and technology. It also states that, not less than 60% of places shall be allocated to science and science related courses in the conventional universities and not less than 80%

in the universities of technology. Yet, labor market demand for degree – based professional skills over the period 1991-1999 centered largely in the field of science and technology such as, engineering, health services, business administration, accounting and marketing (Oni, 2000a). This inadequacy is centrally placed on lack of enough qualified teachers and poor teaching and learning facilities.

In a bid to evaluate quality in the Nigerian universities, the nationwide accreditation exercise that took place in 2000 by the National University Commission (NUC, 2002b) revealed lack of quality of teaching and a widespread of shortcomings in curriculum. Strikingly, only 11% of the 1,185 academic programs reviewed were given full accreditation. This was a notable decline from the 21% of 830 academic programs that received full accreditation during the previous review in 1990/1991 (NUC, 1992).

Surprisingly, the most recent nation wide accreditation exercise by the National University Commission (NUC) which took place in November 2007 revealed some interesting results: 68.7% of the 872 academic programs reviewed were given full accreditation. This was a notable incline from the 11% of 1,185 academic programs that received full accreditation during the review in 2000/2001. Out of this 68.7%, the state universities had a slightly higher percentage of full accreditation (30.6%) than the federal universities (30.4%); while the private universities had the least (7.7%). (NUC, 2008)

Factors associated with the above improvement in the accreditation of university programs (especially as it relates to teaching and learning) needs to be identified; and also the wide variation in accreditation of programmes between the state, federal and the private universities needs to be investigated, so that the quality of teaching and learning in the Nigerian higher education system can be improved.

Therefore, from the above stated situations of the Nigerian Universities, the rationale behind this thesis is to raise a speculation and examine some situation concerning the student's quality evaluation of aspects of their courses and learning environments, viz-a-viz teaching and learning in Nigerian universities using the Student Course Experience Questionnaire (SCEQ), which has been widely used in some other parts of the world to gather information from students concerning the quality of aspects of their courses and their learning environments. We also desire to apply and see the relevance of the

theories of teaching and learning behind these instruments in the context of the Nigerian higher institutions as the students evaluate or express their perception about the quality of aspects of their courses and their learning environments in some selected universities in Nigeria.

Another rationale behind this study is to observe and assess the degree of quality of the aspects of teaching and learning and the associations between factors agreed to influence teaching and learning. This is being done to examine the immediate reality of quality of teaching and learning in the Nigerian higher education system, in order to see the possibility of suggesting an intervention capable of transforming the quality of teaching and learning in the Nigerian higher educational system.

Also relationships between factors that influence teaching and learning will be analyzed and suggestions for improvement will be made where necessary, so that the process of teaching will contribute positively to the learning outcomes of the students.

Given the objectives of this thesis, the study is generally using a sample of seventeen (17) universities out of the 92 universities presented as universities approved by the National University Commission (NUC) during the November, 2007 National Accreditation Exercise. These universities are randomly selected from the six geopolitical zones of Nigeria. This study will explore the use of Student Course Experience Questionnaire (SCEQ) to link up the three dimension of quality of teaching and learning proposed in this study, which we named as (i.e. Intended curriculum, curriculum in action and learned curriculum).

These dimensions might not be dealing with actual content of the curriculum and for the sake of this study, we want to consider some aspects of student experiences or activities associated with teaching and learning based on the questionnaire we developed as part of the curriculum and categorized these activities as either intended curriculum, curriculum in action or learned curriculum.

The study is made based on a Student Course Experience Questionnaire (SCEQ), designed and administered to a random sample of undergraduate students from all the universities in the sample. The questionnaire was administered across all levels of study (new, continuing and graduating

students). The style of questions or items in the questionnaire follows or are constructed based on the 1991 Ramsden's Course Experience Questionnaire. (Ramsden, 1991). The items are arranged in such a way that it will facilitate a more comprehensive assessment of students' perception of the "quality" of their course experiences especially as it relates to teaching and learning. That is to say, it entails assessing their perception of quality of various aspects of their course of study and learning environments, ranging from clear goals, good teaching, learning strategies, appropriate assessment, appropriate workload, emphasis on independence, generic skills and the resources available to support these; also their overall satisfaction with the course they are studying is being sought for. Another important structural characteristic which could be associated with the student's perception of the quality of teaching and learning, such as availability of infrastructure is also included.

The thesis is structured as follows:
Chapter two gives the theoretical framework of the thesis, where the main constructs and dimension of the thesis is discussed; the chapter is divided in to the following section: the definition of quality and quality evaluation in higher education is discussed first in section 2.2.The issue of quality and stake holder with respect to accountability is discussed in section 2.3. Quality as a transformational process is also discussed in section 2.4.

The concept of total quality in education is described using the three internationally recognized quality awards procedures in section 2.5, sub-sections 2.5.1, 2.5.2, and 2.5.3; and brief discussion of the Nigerian standard organization for quality procedures is presented in sub-section 2.5.4. The ideal condition for the adoption of total quality in education is discussed in section 2.6.

Three models for quality assessment and evaluation in education have been discussed in section 2.7. Finally in chapter two, a model to evaluate the quality of student's course experience and learning environment is presented in section 2.8. This model will be used in the course of this thesis in the literature overview and in the research papers.

Chapter three discusses introduction in section 3.1, then the Nigerian education system with more emphasis on the higher education level section 3.2, History and evolution of the higher education system is discussed in

section 3.3. History of quality control system in the Nigerian Education system is discussed in section 3.4 and finally a short description of the current state, effects and new reforms in the education system now is discussed in section 3.5.

Chapter four displays the review of related empirical studies and target/research questions, where the introduction is made in section 4.1 and the Student Evaluation of Teaching and Learning in Nigerian Higher Institutions is discussed in section 4.2. The Review of some related empirical studies on Student evaluation of teaching and learning was discussed in section 4.3. The linking of the Student Course Experience Questionnaire (SCEQ) to the present studies was discussed in section 4.4 and finally the target and research questions for the present study was discussed in section 4.5.

Chapter five consists generally of the methodology employed in the study. Section 5.1 sets in the introduction, while the methodology employed in the pilot test was discussed in section 5.2. The methodology employed in the main sample was discussed in section 5.3.

Chapters six, seven and eight consist mainly of analysis and presentation of results. In chapter six, section 6.1 sets in the introduction and Item Exploratory Factor Analysis (EFA) of the Main Study Instrument was discussed in section 6.2. The Scale Exploratory Factor Analysis (EFA) of the Main Study Instrument was discussed in section 6.3.

So also in chapter seven, section 7.0 sets in the introduction; while sub-scale variations were discussed in section 7.1, the scale or dimension variations were discussed in section 7.2.

In chapter eight, section 8.1 sets in the introduction and the quality dimension (scale) Inter-relationships were discussed in section 8.2. The learning strategies inter-relationships were discussed in section 8.3. The generic skills inter-relationships were discussed in section 8.4 and that of the satisfaction with course inter-relationships were discussed in section 8.5.

Finally in chapter nine, section 9.1 dealt with the discussion, while conclusion and recommendations were discussed in section 9.2. References and appendix closes the end of the entire thesis, with a copy of the questionnaire attached at the end of the thesis write up.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

In order to study and improve the quality of teaching and learning in higher education institutions in Nigeria, it is important to identify where and to what extent problems occur in teaching, learning and skills training programs. In general, the educational system has a very complex structure; and so therefore, in order to study the system and its quality of products and services provisions, it is advisable to divide the system in to small, orderly pieces. These pieces can then be studied. (Sallis, 1997). Such an approach suits the increasing need to improve quality in education, as is the practice in the industrial services and health care sectors.

In a bid to practice total quality in education, educational institutions and bodies in developed countries, e.g. the OECD countries have set up a lot of performance indicators such as management and organization, teaching and learning, support for students, attainment and achievement e.t.c. There are also many theories about evaluation of education and much more about schools evaluation based on these indicators, but in this thesis and from our own point of view, we strongly believe that " Teaching and learning" are the best keys that evaluates and controls the quality of educational institutions and its processes.

From previous studies, there are many indications that the quality of teaching and learning can be evaluated by students, teachers or both. For example, the use of the Student Course Experience Questionnaire (SCEQ) in Australia, United Kingdom and United States of America has proved that student's evaluations are valid and reliable. Many of the studies in this field demonstrated a consistent scale or factor structure, among which includes the following; Clear goals, good teaching, emphasis on independence, appropriate workload, appropriate assessment, learning strategies and generic skills. (Ramsden, 1991; Richardson, 1994; and Wilson et al., 1997).

For this study we included another scale called "course level resource materials and facilities" in order to better capture the case that is relevant to the Nigerian higher education system.

Although quality evaluation and quality improvement is increasingly being introduced in education and other service sectors, generally, several arguments can be identified;

- Students deserve the best possible education.
- Teachers want to provide education as best as they can.
- In a shrinking market, institutions want to be the best in their field, and
- The government demands clear results for the money spent on education.

We believe these and many other arguments not mentioned here places the issue of teaching and learning on the top priority, when it comes to evaluating the quality of education in higher institutions. Taking Nigeria as an example, there have been, especially in the tertiary education such as the Polytechnics, teacher's colleges, Technical schools/Vocational training centers and the Universities, an increasing number of student's enrollments without a corresponding increase in the number of staff (teachers, lecturers, instructors e.t.c) and the material substructure (buildings, laboratories, libraries, books, computers e.t.c) to support this increase; there by rendering teaching and learning inactive and ineffective compared to what it used to be in the past (Okebukola, 1998).

In a similar case, the labor market has increased demands on quality of workers without a corresponding increase in the positions to be occupied. These needs lead to an increased demand for an improved and qualitative teaching and learning in higher education, so that graduates (products) of higher education can correspond and meet the demands of the market. The need for an improved quality of teaching and learning in higher education can be summarized as follows: **Higher Educational institutions should be able to do more with fewer resources and at the same time produce qualitative "products".** (Diamantis, 2001).To achieve this there must be a strategy and this strategy is what Diamantis called an improvement strategy (See figure 2.1).

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Figure 2.1: Improvement strategy
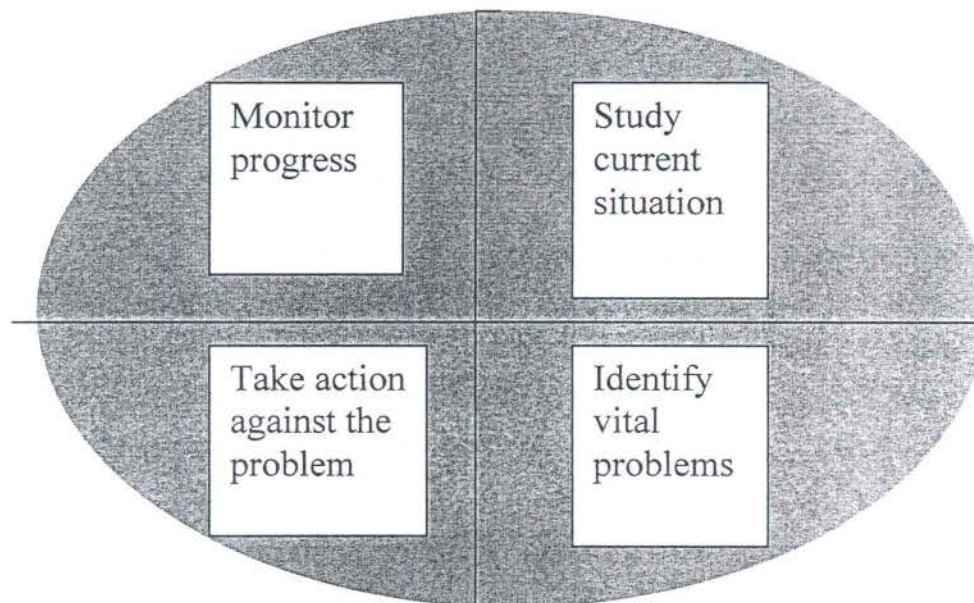
First of all, we need to study the current situation of the institution, (with regards teaching and learning in our own case), identify vital problem areas, then take some action towards the problem and finally monitor the process to make sure that it is continuously in order. By so doing, the quality of teaching and learning can be controlled and maintained. This whole process is what makes up a quality evaluation programme.

It seems that any quality evaluation program is first interested in the Quality Control (QC) of the products. When this is systematized we can then speak of Quality Assurance (QA). This assumes a certain organization in which important parts of the system are continuously monitored in a systematic way. It has to do with a system in which prevention of poor quality is paramount. When a quality-oriented working environment comes in to being, and when an attempt is made to make all workers (teachers, instructors, students e.t.c) participate actively in the Quality Assurance process, then Total Quality Management (TQM) in higher education can be achieved. Eventually such a system will be pro-active, in other words be sensitive to what is going on around the organization and be able to set new aims for itself. (Sallis, 1997; Freeman, 1997). The process, by which all these expected

results would be attained, is the application of the principles and rules of administration of Total Quality in education.

Therefore, if teaching and learning is considered as the major key that evaluates the quality of education in higher educational institutions, then factors that influence teaching and learning must be identified and improved, so that the process of teaching and learning will contribute positively to the application of total quality in the education system.

In this chapter, the definition of quality and quality evaluation in higher education is discussed (section 2.2), the issue of quality and stake holder with respect to accountability is discussed in (section 2.3), quality as a transformational process is also discussed in (section 2.4), the concept of total quality in education is described using the three internationally recognized quality awards procedures in (sub- sections 2.5.1, 2.5.2, and 2.5.3), and brief discussion of the Nigerian standard organization for quality procedures is presented (sub-section 2.5.4), the ideal condition for the adoption of total quality in education is discussed in (section 2.6), Three models for quality evaluation in higher education has been discussed in (section 2.7), a model to evaluate the quality of student's course experience and learning environment has been presented (section 2.8) .This model will be used in the course of this thesis in the literature overview and in the research papers.

2.2 Quality and Quality Evaluation in Higher education.

Defining quality in higher education has proved to be a challenging task. Cheng and Tam (1997) suggested that "education quality is a rather vague and controversial concept "(p. 23) and Pounder (1999) argues that quality is a "notoriously ambiguous term" (p.156). In a broader sense, education quality can be defined as a set of elements that constitute the input, process and output of the education system, and provide services that completely satisfies both internal and external strategic constituencies by meeting their explicit and implicit expectations (Cheng and Tam, 1997, p.23). Therefore, if higher education is viewed as a system, then any quality management program or quality evaluation program must therefore assess inputs, process and outputs;

of which in this study we translated it to intended curriculum, curriculum in action and learned curriculum.

Cheng and Tam (1997) also identified both internal and external form in the quality control and evaluation process of higher education. Activities that take place within an institution e.g. activities of the current students and that of the frontline staff (both teaching and non-teaching) which should be systematically adopted, constitutes the internal quality control and evaluation, while those activities that comes from outside of the institution such as the activities of employers, government and its funding agencies, accreditors, validators, assessors and professional bodies to mention a few, forms the external constituent for quality control and evaluation.

These stakeholders might have disparate definitions of quality as well as different preferences for how quality is assessed and evaluated in higher education. For example, to the committed scholar the quality of higher education is its ability to produce a steady flow of people with high intelligence and commitment to learning that will continue the process of transmission and advancement of knowledge. To the government a high quality education system is one that produces trained scientist, engineers, architects, doctors and so on in numbers just to be required by society. To an industrialist a high quality educational institution may be one that turns out graduates with wide ranging flexible minds, readily able to acquire skills, and adapt to new methods and needs (Reynolds, 1990). Each of these views represents a valid expectation of higher education and its quality.

The measurements thus required and the standards to be applied will surely be different for each of these notions of quality. Hughes (1998) suggests that quality indicators may differ for internal and external stakeholders, each being influenced by the particular area of interest in higher education; Cheng and Tam (1997) further argued that expectations of the different constituencies might be not only different but also contradictory. According to Cullen, Joyce, Hassall and Broadbent (2003) the challenge is to produce performance evaluation framework that permits the equal expression of legitimate voices, though they may conflict or compete in some ways.

The above ideas are resonant with what Barnett (1994) conceives as a threefold connection between different conceptions of higher education, different approaches to quality, and identification of different outcome

measures (which Barnett termed as performance indicators).This interconnectedness between conceptions, approaches and outcomes was illustrated in the context of four dominant contemporary conceptions of higher education. These are;

1. When higher education is conceived as the production of highly qualified manpower, the graduates are seen as products whose career earnings and employment will relate to the quality of the education that they have received.
2. When higher education is likened to a research career, the performance indicators then becomes the research output of staff and students and the input measures of their research ability.
3. When higher education is conceived as the efficient management of teaching provision, the performance indicators are efficiency indicators, such as completion rates, unit costs, student-staff ratio, and other financial data.
4. Finally, when higher education is conceived as a matter of extending life chances, the focus is on the participation rate or percentage growth of students from underrepresented backgrounds including matured students, part-time students and disabled students.

Each of the above four conceptions of the purpose of higher education has its own definition of quality and with a distinctive set of performance indicators that are associated with it. Common in these four conceptions is the view of higher education as a 'black box'. None of them focuses on or indicates an interest in the educational process, or the quality of the learning achieved by the students. They ignore what goes on in the 'black box' and focus mainly on inputs and outputs.

Barnett (1994) later contrasts these four conceptions with another four conceptions of higher education which focus, this time, on the quality of students' experience. They are;

1. A conception about exposing students, or initiating them into the process and experience of pursuing knowledge.
2. A conception that is related to the development of student's autonomy and integrity.

3. A conception that values the cultivation of general intellectual abilities of students to form perspectives and vision beyond the confines of a single discipline.
4. Finally, a perception that allows for the development of a critical reasoning.

The later four perceptions, do not lend themselves easily to evaluation by numerical quality measures, such as performance indicators. This is because the complexity and quality of the educational process and student experience will not be readily captured by any form of objective measures using numbers and scores. Hence, the usefulness of performance indicators by focusing on the input and output alone is very much in doubt, but the evaluation of student's experiences about major aspects of their studies and their study environments will pave a meaningful way of understanding and assessing quality in Higher education institutions.

Harvey and Knight (1996) in their discussions of the relationship between quality and standards in higher education suggested that, quality in general can be broken down in to five different but related dimensions: Quality as exceptional (e.g. high standards), quality as consistency (e.g. zero defects), quality as fitness of purpose (fitting customer specification), quality as value of money and quality as transformative (i.e. an ongoing process that includes empowerment and enhancement of the customer satisfaction). While the authors advice that quality as transformative incorporates the other dimensions to some extent, it can also be argued that different stakeholders are likely to prioritize the importance of these different dimensions of quality according to their motivations and interest (Owlia and Aspinwall, 1996).

From the above discussions therefore, it is apparent that the concept of quality in higher education is generally complex and it depends on different stakeholder perspectives. The problems raised by this pluralistic view of quality and its measurement are:

- Who should define the purpose and quality of higher education? Should it be the government, the students, the employers of students, the managers of institutions or the academic professionals?

- How will the conflicting view about higher education and quality be resolved in judging the quality of an institution and its product? Who will determine the priorities? (Green, 1994).

As a result of the diversities in views about quality and higher education, a variety of systems and approaches have been developed for monitoring quality of different kinds and at different levels, displaying varied emphasis and priorities. These monitoring systems include the following;

- *Quality Control:* Is a system to check whether the products produced or services provided have reached the pre-defined standards. Quality is usually inspected at the end of the production and it is usually undertaken by someone external to the workforce. The problem with this approach to quality measurement in higher education is that it is done in isolation ignoring the fact that the overall quality of a university must be the concern of every one who works there (Frazer, 1992).

- *Quality Assurance:* Is a system based on the premise that every one in an organization has a responsibility for maintaining and enhancing the quality of the product or service. When put in the university context, quality assurance requires a whole-institution approach for a complete transformation to quality involving top-level commitment, followed by substantial and comprehensive re-education of all personnel (Chaffee and Sherr, 1992).The transformation requires time, effort and willingness of every one in the institution to an organizational culture that prizes quality, relentlessly improving in search of perfection. However, this is something very difficult to achieve, which very often remains as a goal or philosophy that universities will aspire to seek to achieve or get closer to.

- *Quality Audit:* Is a means of checking that relevant systems and structures within an institution which support its key teaching mission, and to ensure that provision is at or beyond a satisfactory level of quality. A quality audit can be conducted either internally or externally. Audit checks that the university system does what it says it is going to do, and has written documented evidence to prove it. The major criticism of audit is that, they offer no more than a snapshot of an institution (Pearce, 1995). Educationist normally finds audits distasteful-shallow, undemanding, since either the evidence of

conformance to process and procedure is there or it is not; there is no argument about it (Green, 1994).

- *Quality Assessment:* Is a means of assessing the quality of what is actually provided by institutions (Pearce, 1995). Green, (1994) adds that quality assessment involves the judgment of performance against criteria, either internally or externally. This gives rise to a potential source of conflict, precisely because quality criteria for education are so difficult to agree (Keefe, 1992). Another potential problem with quality assessment is that it is usually intended to be mission sensitive (Pearce, 1995). It examines the quality of education provision against the expressed aspiration of the individual institution. If the institution has high aspirations, quality is to be measured against this yardstick. That might make it more difficult for a university to succeed than another which set it self lower aspirations. Taken to absurdity, a university which aspired to produce rubbish, and succeeded, would be of higher quality than a university which claim intellectual excellence and narrowly failed (Pearce, 1995).

- *Indicator Systems:* An indicator system to evaluating universities compares performance over a range of indicators (Johnes and Taylor, 1990).There are several characteristics associated with performance indicators. First a performance indicator should have a monitoring function (an item of information collected at regular intervals to track the performance of a system) Fitz-Gibbon (1996). Performance indicator is usually quantitative (Cuenin, 1986). Performance indicators are objective-related; they are statements usually quantified on resources employed and achievements secured in areas relevant to the particular objectives of the enterprise. The development of performance indicators in higher education can be traced back to manufacturing industry and relates to the way in which inputs are transformed in to outputs (Johnes and Taylor, 1990). Put in the university context, the theory examines the relationship between the outputs that universities aim to achieve and the inputs they need to produce those outputs.

According to Johnes and Taylor, (1990), if universities are to be evaluated, it is therefore necessary to acquire information about;

1. The output which universities aim to produce.

2. The inputs which the universities need to produce these outputs.
3. Quantitative measurement of each university's inputs and outputs.
4. The technical relationship between inputs and outputs.

Such emphasis on the link between inputs and outputs emanates from political motive of comparing institutions to estimate what each university could have produced with the inputs available to it. They concluded that, the purpose of attempting to measure the technical relationship between inputs and outputs in the university sector is actually to provide a benchmark against which each university can be compared.

Despite its promise for greater accountability and benchmarking between institutions, this production model of quality assessment does not quite apply to higher education since universities produce more than one output which is different and difficult to measure in monetary or even physical units (Cave et al., 1998). For example, some common objectives of university's outputs, such as cultivating talents of students and disseminating cultural values are not easily subjected to quantitative representation. Many process variables such as teaching and curriculum effectiveness are difficult to measure and may not show direct link between inputs and outputs, so both input and output indicators do not and can not comment on the quality of the student experience in higher education.

They further identified there is no way of attributing specific inputs to specific outputs, since the outputs of higher education are more than one and differ substantially in kind and in quality. Hence it will be difficult to substantiate the link between inputs and outputs as it is the practice in industrial set ups. They concluded by saying that, the idea that institutions of higher education are founded on processes of causing growth and development of students in a holistic sense, incorporating not just intellectual growth, but social, emotional and cultural development as well, warrants to the measurement of quality as a kind of 'Transformation (Harvey and Green, 1993).

2.3 Quality and Stakeholders: Accountability

Generally, external stakeholders are mostly concerned with quality assurance procedures. Quality assurance is defined as the planned and systematic actions (deemed) as necessary to provide adequate confidence that a product or service will satisfy given requirements for quality (Borahan and Ziarati, 2002). For higher institutions therefore, this requires them to demonstrate responsible actions in their professions, be responsible for funds received and demonstrate the result achieved with the available resources, (Jackson, 1998).

Elton, (1992) refers to these as quality 'A's: "Accountability, Audit and Assessment" and he suggests these are concerned with the control of quality. As a control tool therefore, the focus is predominantly on the extent to which the procedures and conditions that are perceived to result in appropriate levels of quality are followed within institutions or programs and are effective in meeting their purpose (Jackson, 1996).

Internal stakeholders on the other hand, are more concerned with quality as transformative, where it is an ongoing process that includes empowerment and enhancement of customer's satisfaction. The emphasis here is not only on quality assurance, but also on quality enhancement which aims for an overall increase in the actual quality of teaching and learning often through more innovative practices (McKay and Kember, 1999).

Elton (1992) suggests that this approach focuses on the quality 'E's: " Empowerment, Enthusiasm, Expertise and Excellence" The mechanism here involves self-evaluation and student survey, since students are viewed as an integral part of the learning process (Wicklund et al.,2003). This approach tends to be more formative in nature and as a result, it is more likely to lead to continual quality improvement efforts and since internal stakeholders are involved, it is more likely to result in to a culture of quality being embedded within programmes and institutions.

The actual measurement of quality is also approached differently. While some utilize quantitative data to produce quantitative ratings, others prefer qualitative approach. Quantitative ratings facilitate performance comparability especially on longitudinal basis; they generally fail to provide

any clear explanation as to why ratings are given. Qualitative data, on the other hand, often provide richer data (Powell, Hunt and Irving, 1997), which can more readily inform decision making for quality enhancement purposes. Any quality management programme that utilizes a mixture of both types of data would seem most appropriate for quality control, assurance and enhancement purposes (Brookes, 2003).

There have been various attempts to develop quality assessment models for higher education. However, the tools most frequently drawn upon (See for example, Motwani and Kumar, 1997, Eriksen, 1995), is that of Total Quality Management (TQM), defined as:

'A management approach of an organization, centered on quality, based on participation of all its members and aiming at long run success through customer satisfaction and benefits to all members of the organization and society'.(ISO 8402 in Wiklund et al., 2003, p.99).

Total quality management (TQM) has the potential to encompass the quality perspectives of both external and internal dimensions in an integrated manner, and thereby enable a comprehensive approach to quality management that will assure quality as well as facilitate change and innovations. However, there have been a number of limitations identified in the wholesale adoption of total quality management (TQM) to higher education. Roffe (1998) suggest that while there are a small number of quality indicators in industry, there are more numerous and complex indicators in higher education, and therefore very difficult to assess.

Similarly Yorke (1994) advises that accountability relationships are more complicated. Roffe (1998) indicates that while accountability emphasis of total quality management (TQM) in industry is on a team, this tends to lie with individuals in higher education. Harvey (1995) further agues that the emphasis in industry lies with customer, whereas in higher education there is a continued debate regarding who the customer actually is. As a result of this debate, Hewit and clayton (1999) recommended that a model of educational quality that is different from, but capable of being related to commercial models is beginning to emerge, however not yet completed.

This brief review about quality in higher education suggest that there is as yet, no definitive model to evaluate quality in higher education, nevertheless there appear to be key constituents of an analytical quality framework to assess current quality management practices within higher education. For the purpose of this study, these have been identified as;

- The degree to which inputs, processes and outputs are assessed.
- The degree to which the quality dimensions are considered.
- The extent of quantitative and qualitative assessment inherent in quality evaluation process.

2.4 Quality as Transformation.

The idea that higher education is about the educational processes and the development of minds and hearts of students is resonant with the transformative view of quality espoused in the following quote:

The transformative view of quality is rooted in the notion of 'qualitative change'; a fundamental change of form...Transformation is not restricted to apparent or physical transformation but also includes cognitive development. (Harvey and Green, 1993).

In addition to cognitive development, Caul (1993), added that higher education does not just enhance student's intellectual capacity, but also can 'literally transform self-image, equip the individual with more skills, build on the basis of the knowledge that the individual had, before arrival; change attitude and assumptions'.

In this light, the notion is that quality as transformation implies a change in students in all aspects as a result of the higher education they receive. Another similar terminology used to describe the change in student's development caused by higher education is 'growth' and 'impact' (Astin, 1985). All these terms imply an importance for universities to bring about a positive change in students in both cognitive and non-cognitive dimensions in other to be considered excellent which displays quality in provision. Hence the performance evaluation of higher education should incorporate a

consideration of the impact of the institution on its students, as it was rightly concluded by Astin (1985); its basic premise is that true excellence lies in the institution's ability to affect its students... to make a positive difference in their lives. The most excellent institutions are... those that have the greatest impact... on the student's knowledge and personal development.

Such institutional-impact approach to the monitoring and evaluation of performances of universities has, as a result, called upon a number of quality measurement methodologies that aim to capture the positive influence or the 'value-added' to the students as they pass through the system of higher education. One of these methods is the popular 'value- added approach of trying to measure the pre- and post-difference in students at different points in time.

Value-added education examines changes in student's performance over time Student's assessed for entering competencies and then reassessed following the completion of appropriate courses or experiences. Differences between the initial and subsequent measures are then used as evidence of institutional impact (McMilan, 1988).

There is no doubt that the value-added approach to quality measurement is advancement from the input-output analysis and its associated performance indicators. Compared to the simple input-output measure, the value-added method is more appealing because it tries to correct for differences in quality of student input and measure the competencies of students at entrance to the university and subtract this from their ability upon emerging at graduation. The idea of measuring the value-added to students is related to a shift from the traditional concept of quality as exceptional towards relative and transformative notion (Harvey, 1995).

Despite many of its promises for better quality comparisons of institutions by making available gain scores and impact data, the value-added approach to performance assessment in higher education is fraught with problems. The fundamental problem is that value-added assumes there is a stable relationship between students' performance at the point of entry and exit (Barnett, 1994). However the purpose of higher education is to provide students with a new order of experience, to equip them with new frameworks for thoughts and actions (Barnett, 1992). Hence the assumption

that there is a necessary relationship between student's attainments on entry and those at the point of exit is improper.

In his criticism of performance indicators, Barnett (1994) commented that performance indicators can only tell past performances. In themselves, they can not provide insight in to the future or even suggest ways in which things ought to be modified or improved (Barnett, 1994). This criticism also applies to the value-added and institutional- impact approaches to quality assessment in higher education because they report mainly on the change already made to the students and provide pre and post-data to shed light on the institutional influence that has taken place.

Value-added research and institutional-impact studies provide useful information in terms of student differences over a period of time but they can not adequately explain what might have caused such differences due to many of the technical difficulties just outlined. Furthermore, both value-added and institutional-impact evaluations do not get to the heart of the quality of the student experience per se. Their focus is still very much on the institutional aspect of quality instead of on what might be the chief necessity of what higher education is about.

In higher education it is the student who primarily does the achieving. The institutional dimension of higher education, though a necessary dimension, should be subsidiary to the student dimension (Barnett, 1992). Studies that aim to investigate numerous aspects of student experience in higher education are contributing to the knowledge of quality learning and the necessary conditions in institutions that are required to promote quality learning in students.

Research on quality student's experience requires an array of methods, which should include both quantitative measures to shed light on the experience per se and the factors that are associated with particular aspects of it. These methods may involve the measure of the student's achievement or a standardized test before and after they receive higher education, their involvement in certain courses or curricular choices, and other sources of information, such as student interviews and surveys, opinions of faculties and resident personnel. The causes of behavioural change are complex and multidimensional in the institutional setting and if only one method of

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collecting data is used, it is likely that conclusions based on the results will be oversimplified and misleading.

Warn and Tranter (2001), explore the relationship between the development of generic competencies and 'fitness for purpose' for entry in to work place. They argue that higher education adds value by the development of generic competencies that prepare students for the workplace, and if the competencies are seen by the graduates to have been developed in their degree, then it can be hypothesized that they would see the degree as preparing them for the workforce. By developing generic competencies, higher education also performs a transformative function because the development of these generic competencies transforms the students and enables them to be adaptive, adaptable and transformative. This view of competencies concords with the transformative model of quality, in which higher education adds value to students through their learning experience (Harvey, 1995).

In the transformative model, quality relates to the way in which educational experience enhances the knowledge, ability, skills and critical reflective thinking of graduates as well as empowering the graduates (Harvey and Knight, 1996). It is reasonable to expect that these attributes would prepare graduates to adopt socially productive roles in the society. Harvey et al. (1997), argues that employers do not want narrow purpose trained graduates, rather they want employees who can be adaptive (readily fit in to the workplace), adaptable (use their initiative to develop new ideas), critical reflective thinkers (for innovation, anticipating and leading change) and transformative (help the organization evolve by inspiring others and leading changes). In order for graduates to be adaptive, adaptable, reflective and transformative, higher education needs to develop within graduates a set of attributes that employers see as desirable. Mindful of these views, the fitness for purpose argument can be more usefully restated as the requirement of higher education to develop generic competencies rather than specific trade skills.

Davies (2000) in his work 'Why kick the L out of learning' was able to establish twenty skills in addition to the skills in the area of study, which a graduate must possess in order to be a marketable product. He categorized the skills in to four categories based on an axis, which relates to the graduates internal and external world.

They are as follows;

The inner you: Is concerned with what was processed in the mind without active relation to others. These skills are;

- Knowledge
- Intellect
- Delivery
- Self confidence
- Self awareness

The inner you, aware of outer world:

- Transfer skill
- Decision taking
- Action planning
- Explore opportunities
- Cope with uncertainties
- Development focus

The inner and outer world in balance:

- Flexibility and adaptability
- Political awareness
- Networking
- Negotiation
- Self promotion

Outer world drawing on inner you:

- Communication (oral)
- Communication (written)
- Team working
- Relate to others

Any graduate who possess these skills in addition to the skills acquired in the area or course of study is a product of an education process that considers quality as a transformation.

2.5 Total Quality.

The concept behind total quality management is concerned with building quality in to a product (teaching and learning in our case) through out the production process, so as to satisfy customers increasing demands. That is to say, as we are building up the quality of teaching, it will affect the student's learning, which will in turn affect the labor market demands. This means that constant work and effort should be tapered towards adapting the new philosophy of the day, in order to improve quality and productivity and such entails the inclusion of everyone in the system or organization to accomplish the transformation. This is the main principle of total quality management.

The revolution of total quality started in Japan in 1970 and it spread to the United States of America in the mid eighties and now of recent the practice is adopted by the Europeans in a bid to develop quality. As a result of its large development, many presentation development models have been designed and many organizations and institutions of different countries have adopted two or more of the models of total quality management in order to offer their client's qualitative products and services.

An organization or institution that wishes to satisfy the conditions of total quality management must adopt or implement any of the three methods among others; namely: The Malcolm Baldrige National Quality Award, the W. Edwards Deming's Recognition and finally the ISO 9000 Certification. We shall discuss in details the four methods in the subsections below;

2.5.1 The Malcolm Baldrige National Quality Award.

The Malcolm Baldrige National Quality Award was created by Public Law 100 - 107 and signed in to law on August 20, 1987 by President Ronald Reagan. This award was named after Maldrige Baldrige in recognition for his managerial excellence, contributed to long-term improvement and effectiveness of government, when he served as the US secretary of commerce from 1981 until his death in 1987.The award given is the National Institute of Standard and Technology (NIST) award. The program aims at prioritizing quality in the manufacturing, service and small-scale business, there by revitalizing the US

economy during the 1990's.This aim is achieved by an organization that is able to meet some criteria called 'The Baldrige Quality Criteria'. The Criteria are the basis for conducting organizational self-assessment, for making awards, and for giving feedback to applicants. Organizations/ institutions in each category are checked on annual basis to make sure these criteria are understood. Applications are evaluated by a group of examiners who specialize in quality topics from different companies, professional organizations, universities and the government. The Baldrige award is the highest recognition in quality that an organization, company or an institution can achieve in the United States of America.

The Criteria have three important roles as follows:

- To help improve organizational performance practices, capabilities and results.
- To facilitate communication and sharing of best practice information among US organizations of all types.
- To serve as a working tool for understanding and managing performance and for guiding organizational planning and opportunities for learning.

In 1999, the categories for the award was extended to the fields of education and health care and 5 education and 4 health care organizations are involved in 2004. Today, the Baldrige national quality program and the Baldrige award recipients are imitated and admired world-wide, particularly the Baldrige criteria for performance excellence are widely used as an assessment and improvement tool.

The Baldrige Education Criteria for Performance Excellence are about students excelling. They are also about an organization that is high performing, has high integrity and is characterized by the ethical behavior of its students, faculty and staff. See details of the Baldrige Education Criteria in the Appendix 1.1.

2.5.2 The W.Edwards Deming Recognition

Deming's Recognition is the oldest quality recognition and the Japanese Union of Scientist and Engineers (JUSE) provide it. It started in the year 1951 and was called 'The Deming's Recognition' in honor of the great efforts of W.

Edwards Deming in driving organizations and companies to incorporate the practice of quality control systems based on statistical quality control.

From the Deming's system of profound knowledge and the Deming's 14 points in OUT OF THE CRISIS (1986) by the W. Edwards Deming Institute, Washington, DC. Published by the Massachusetts Institute of Technology, Center for Advanced Educational Study (MITCAES), Cambridge, MA 02139. It is vividly clear that an organization's prevailing style of management must undergo transformation and this transformation requires a view from outside. A good step towards the transformation is the transformation of the individual, which comes from the system of profound knowledge. The individual transformed will perceive new meaning to life, events, numbers and interactions with others. The individual once transformed will:

- Set an example
- Be a good listener, but will not compromise
- Continually teach other people
- Help people to pull away from their current practices and beliefs that is no longer relevant to development of the organization and move towards change that will bring positive improvement to the organization

The above is achieved through

- Appreciation for a system
- Knowledge about variation
- Theory of knowledge
- Psychology

The 14 points for management in industries, education and even government follows the application of this outside knowledge for transformation from present style of management to one of optimization.

The Deming's award is one which need not be applied for, annually, once awarded it implies that the organization or company has successfully reached an important level in quality of its products and services. That is to say, there is no limit to the number of awards every year and the distinction has many categories for individual companies, factories, institutions and even smaller companies.

An organization satisfies the requirements for the Deming's award if the senior management of the organization applies to the evaluation committee. The whole procedure is called 'The challenge' and it lasts for three to five years. As soon as the management of the organization is able to convince the evaluation committee of their readiness for the examination, special examiners are assigned for the examination. These examiners carry out an accounting check of quality with special attention to statistical methods using a short list of options.

The criteria for this award are as follows;

- Social and objective targets
- Arrangement and operations
- Training
- Collection and disclosure of information
- Data analysis
- Standardization
- Report
- Security of quality
- Results
- Future planning

A company, organization or an institution receives the Deming's award as long as the senior management completes at least 70 units and the departments must complete at least 50 units. Companies, organizations and institutions that want to apply for the Deming's award usually receives a report with suggestions from the evaluation committee and the report includes topics covering the best operation of quality.

In the year 1984, the Deming's award received applications from many organizations outside of Japan. Florida's electric company, one of the biggest in the United States of America received the first award in 1989.

Like the Baldrige's Criteria for education performance excellence, the Deming's criteria can be applied to education also, though it is the most difficult recognition to obtain in education. This is because it uses numerical facts that include teachers, employee's salaries, student's progress, teacher's characteristics and the acquisition of sub structural materials etc, for high statistic analysis.

2.5.3 Certification ISO 9000

ISO is the International Organization for Standardization. It is established in 1947 and is located in Switzerland. Its aim is to develop common international set of standards. The quality system management standards ISO 9000 were first issued in 1987, revised in 1994 and republished an updated version in 2000. The first issue were based on already established British, Canadian and American standards, and some guidelines for the Deming award. The new standards are referred to as the 'ISO 9000 2000 standards.

ISO 9000 applies to all types of organization, and it doesn't matter what size they are or what they do. It helps both product and service oriented organizations achieve standards of quality that are recognized and respected through out the world. ISO 9000 currently includes three quality standards: ISO 9001 2000 which presents requirements, ISO 9000 2000 and ISO 9004 2000 which presents guidelines. All of these are process standards (Not product standards). As a result, standardization is not able to establish the fact that one product is better than the other, rather it certify an organized system of quality. Therefore if any company or an organization has the ISO 9000 certification, it is a written testimony that the company follows an ongoing development in the system of quality. With this written system of quality, the whole knowledge of how and why every occupation is conducted can form a part of the system. Also in a situation where a company or an organization loses its functional workers, the documentation of the quality practices of such workers will enable the company or the organization to continue with its qualitative work. The documentation is what gives the company knowledge or information about the work, by reflecting on the modification that needs to be done in the field of the work; so as to enable the company or organization to satisfy the growing demand of its clients. The certification last for three years and is subject to checking every six months to ensure the adjoining presentation and operation of quality system.

Although ISO 9000 standards involve a system originally designed for manufacturing, they are being used more and more in education sector. According to Barton (1994), quality system standards do not prescribe the manner in which a system should be implemented in education and training.

There is no indication of what the educational content, process, norms or performance indicators should be, however, they do specify what activities need to be controlled, measured and documented. Where applicable, competencies, performance indicators, standards, and benchmarks are to be identified; these may be set either internally or externally by customers, government and professional bodies. If there is quality in studies, in the subjects and in the procedures, then this can be registered and possible modifications can take place which will result in a positive influence in the whole teaching establishment.

Freeman and Voehi (1994) were able to identify the following as clauses that are relevant to education:

- Management responsibility (*)
- Quality system (*)
- Contract review (*)
- Design control (*)
- Documentation
- Purchasing (*)
- Purchaser-supplied product (*)
- Product identification and traceability
- Process control (*)
- Inspection and testing
- Inspection measuring and test, equipment
- Inspection test status
- Control of non-conforming product (*)
- Corrective action (*)
- Quality records (*)
- Internal quality audits (*)
- Training (*)
- Servicing
- Statistical techniques

The symbol (*) represents clauses that are relevant to education.

The above listed items are the twenty elements of functional nature that an organization will have to accept in order to achieve the ISO 9001 certification and be registered in the ISO catalogue. The ones marked with (*) are the ones

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relevant to education systems. The complex ranges of activities, which are involved in any academic program in the higher education sector; do not favor the use of quality system, which has its base in the manufacturing sector. While it is possible to identify where infrastructure requirement are documented, process are being conducted according to the standards. But shortcomings are readily evident in the academic areas where **'academic freedom'** sees little use of documentation of individual style and mode of delivery. Therefore in trying to put in place any quality management system in education, suspicion, cynicism and apathy are issues to be dealt with within academic and service areas. Three key elements in quality assurance have been pointed out by Lenn (1993), and they are;

- Accountability
- Common standards
- Third-party evaluation.

It can be argued that the ISO 9000 standards for education provide these elements.

Many countries have adopted the ISO 9000 certification by adding a complementary name; e.g. BS 5750 for England, NS ISO 9000 for Norway, EN 2900 for European Community etc. These certifications are quite similar. In Europe, and now in many countries, companies and organizations are asked to have this certification. To be registered in the certification list, an organization should satisfy one additional factor, which follows every ISO 9000 requirement. An organization must also preserve those requirements so that they can be deemed reliable even if working conditions change.

ISO 9000 is defined, but the way a company or an organization can achieve in it is the responsibility of the company or organization. Well-written proceedings are required for all the functions that affect quality. These can be in the form of written documents, electronic data or in form of a flow chart. The data agreement is supervised by a third independent member, who is recognized for his professional abilities and by an international group of inspectors like the 'Register Accreditation Board' (R.A.B).

2.5.4 Standard Organization of Nigeria (SON)

The Standard Organization of Nigeria (SON) was established by Act No. 56 of 1971 with the authority for standards elaboration, specifications, and quality assurance system of manufactured industrial and imported products and services generally, including metrology of 1976 which amended the previous one conferred on the honorable minister of Industry declare mandatory Industrial standards in respect of products or processes recommended by the council. The Act No. 32 of 1984 changed the name of the organization to SON from Nigerian Standard Organization (NSO). Finally, the Act No. 18 of 1990 conferred on SON partial autonomy from the amendment gave far reaching transformation to the organization and its corporate image became a body corporate with succession and a common seal, and may sue or is sued in the name.

SON is governed by the Nigerian Standard Council established by the section 3, subsection; of Act No.56 of 1971.One important aspect of the quality control of the organization is the annual certification of products from companies for quality award known as (NIS) Award. This mark is given to manufacturers as a symbol of quality and could be displayed on their products for the year it was won. The procedure for certification of products for quality Award involves a series of systematic inspections of the product and factory undertaken to determine that they conform to the relevant NIS specification. Laboratory test are then carried out on the product's conformity with the relevant SON established parameters. Once these processes have been completed, the quality of the product is certified to have met the approved standard and the manufacturer is awarded the mark, which is put on its products for the year. Also more procedural inspections are carried out on factories and laboratory test conducted samples during a follow-up action. The monitoring is to ensure that the subsequent quality of manufactured products is in accordance with the relevant approved NIS specification. Though each NIS award is only for one year, it can be renewed for subsequent years as long as the relevant standard parameters are met. The certification can also be withdrawn if found to have grossly defaulted after the award. There are categories of NIS quality awards and they are;

- Ordinary NIS Certificate for those who consistently won the award for a period of one to four years.

- Silver NIS Award for those who won consistently for the period of five to nine years.
- Gold NIS Award for those who won consistently for the period of ten to twenty four years.
- Finally, for those who outstandingly won consistently for twenty-five years and above, wins the Diamond NIS Award.

Although the SON procedures for quality control is much more applicable to companies and manufacturing organization, its practices if expanded and modified properly, can be applied even in higher education institutions to achieve quality improvement in education. Some government parastatals like the National University Commission (NUC), National Board for Technical Education (NBTE) and National Commissions for Colleges of Education (NCCE), formed under the Federal Ministry of Education are concerned with ensuring and the control of quality in the Nigerian higher education system.

2.6 The ideal conditions.

For a complete adoption of Total Quality in education, (Barbara, Cleary, Sally and Duncam, 1998), were convinced that every educational institution must satisfy the following targets;

- Ideal students
- Ideal parents
- Ideal professors
- Ideal school management
- Ideal principles of school
- Ideal collaborators-suppliers
- Ideal ministry of education

The above targets also form the factors that influence the educational system function (see figure 2.2 below), and when every educational institution meets these, it gives rise to ideal conditions for the achievement of total quality in an education system. We expand or give more elaboration to each of the targets in the following sub-sections below

Figure 2.2 Factors that Influence the Function of the Educational System
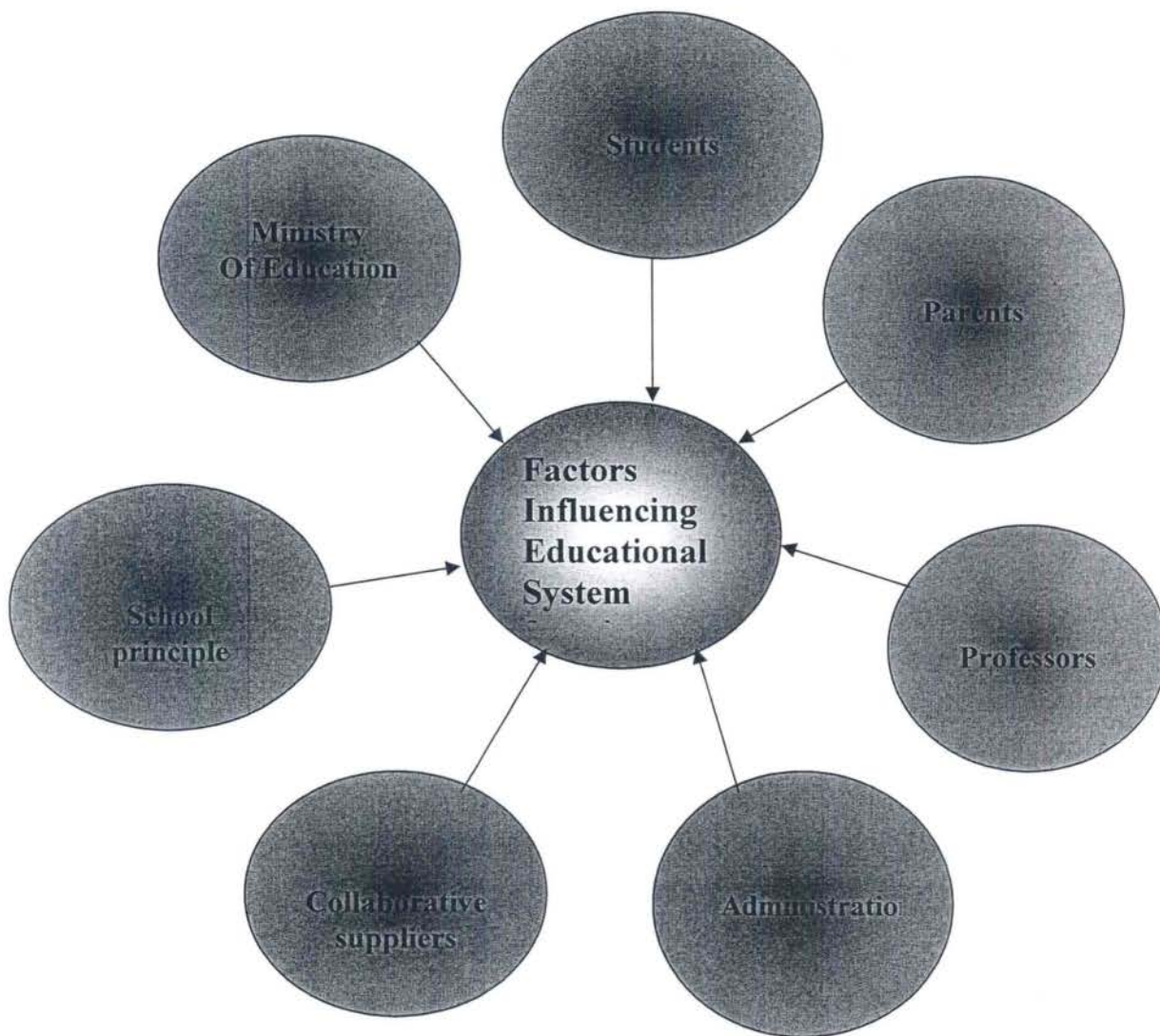
2.6.1 Ideal students.

Ideal students should be able to;

1. Clarify their purpose of being in school; clarify how this purpose will be achieved and how they will use their knowledge in the future.
2. Accept the function of rules and the codes of behavior in the school community.
3. Be enthusiastic and show great desire for learning quality work; study and work hard to achieve that.
4. Participate in collective work-study and in different committees that the management defines.
5. Take responsibility for the control of their studies and projects.
6. Have a documentation of their level of knowledge in different areas (using charts).
7. Present their progress by collecting their projects in a folder instead of a traditional file.

2.6.2 Ideal parents.

1. Be well informed about the initiative for improvement for school support.
2. Be deeply involved in their children's education.
3. Dedicate some of their time to take part in social and cultural school events.
4. Survey the school targets and its needs for development and improvement at least once a year.

2.6.3 Ideal professors.

1. Should be interviewed and hired with complete and uninvited approval.
2. Participate in project teams and support the school needs.
3. Try to give solutions instead of simply talking.
4. Try to expect that 95 percent of their students will achieve a good level.
5. Use original assignment to attract the student's attention.

6. Take in to consideration that change must begin from the top and they must be the top in their class.
7. Meet frequently with other professors and discuss the problems and demands of their schools and classes.
8. Use a collective and sharing method of teaching.
9. Be daily informed of the educational style and possibilities of every student.
10. Use these points for the evaluation, support and encouragement for every student's progress.

2.6.4 Ideal school management.

1. Be totally devoted to the successful studies of every student.
2. Have an annual meeting of students and parents for the definition of school problems and the evaluation of the satisfaction given by the school.
3. Give complementary preparation to graduates when needed.
4. Hold frequent discussions with their employers about their satisfaction of the school's graduates.
5. Plan collaborations with other schools to develop projects for the improvement of the functioning of the school.
6. Work with the local health services.
7. Create working teams for every decision that is being taken, so that they can easily meet their target.
8. Testify that all the working staff will have the necessary information, so that they can work better.

2.6.5 Ideal principles of education.

1. Encourage, listen and receive new ideas from the working staff.
2. Value and appreciate the staff progress, as well as honor the best students of the school.
3. Present to companies, people with experience in the total quality management.
4. Make decisions using democratic procedures, with general consensus.

5. Pay more attention to the new procedures of decision taking, rather than sticking to old and outdated procedures for simplicity's sake.

2.6.6 Ideal collaborators-suppliers.

They should be able to;

1. Collaborate with the school in terms of quality development.
2. Constantly supply the school with the necessary training skill and check the graduate's specification for quality improvement.
3. Allow teacher's to attend seminars in total quality management of their companies by using examples from their schools.
4. Give all information for their total quality programs and also render technical support to those interested in them. Give financial assistance to teachers to enable them attend university courses and conventions on total quality management. They should also seek to help them improve their knowledge.

2.6.7 Ideal ministry of education.

Should be able to;

1. Support every decision that is geared towards development and total quality.
2. Be willing to relax some orders and practices in order to have successful schools.
3. Try to enhance collaborations with companies in order to make teachers training easier.
4. Organize conventions so as to distribute its successful application of total quality management.

2.7 Three Models for Quality Assessment and Evaluation in Education.

Quality always contains an aspect of appreciation and measurement, and based on qualitative and quantitative data, one can tell whether parts of a process of production or services comply with certain standards.

In his writings about quality in health care education, which can also be applied to education in general, (Donabedian, 1966 and Donabedian 1988), states that it is useful to make a distinction between 'structure', 'process' and 'outcome' when conducting an evaluation. In education, the above dimensions are more or less discrete entities and are often considered and measured in different ways.

Structure: These are structural characteristics that are relatively stable. They are usually conditions, which when they are met or are stable or ideal, will lead to the setting of the process in action. With regards to higher education in general and in connection to the ideal conditions discussed above, these can be, having an ideal ministry of education with an ideal principle of education. At the institutional level, these can be, for example, having an ideal school management, the level of secondary education of students, professionalism of the teachers, the institution's infrastructure and also the financial means of the institution. At the course level, this could mean having clear goals of your course, course level facilities and materials.

Process: This dimension describes the interaction between consumers and suppliers. In our case these would be the interactions between students and teachers and in connection with the ideal conditions, these may mean having ideal professors and ideal students. It could also be reasonable to consider ideal collaborators and ideal parents as part of the process, because their contribution is part of the process that will enhance either the performance of the teachers or that of the students. Measure for process in higher education is, for example, to what extent feedback is offered to students while learning and practicing skills in their respective subjects of study. To what extent do parents get involved in the educational development of their children, or to what extent collaborators e.g companies collaborate with schools in terms of quality development of education? At the course level,

process could mean the teaching, appropriate workload and appropriate assessment a student experiences.

Outcome: In higher education, this is described as the effects of teaching on students; for example, this could mean verifying to what extent a student has mastered the final objectives of his/her studies. This can also be likened to the skills and knowledge exhibited by an ideal student, after a successful completion of each stage of learning. This implies that, these objectives must be sufficiently defined, and that student's performances are measured in a valid and reliable way. At the course level, outcome may mean the learning strategies and the generic skills acquired by the students as a result of going through the course.

However, the subdivisions of structure, process and outcome are not completely unambiguous. Classification of quality indicators in one of the three dimensions above is not always possible. For example, it is possible to classify student's satisfaction with the education they receive as a process and as an outcome indicator.

The other two models described below focuses on medical education curriculum, but we believe it can be applied to any aspect of education generally, especially with regards to the student's evaluation of the aspects of their courses and learning environment which is generally linked to quality of teaching and learning.

Nelson, Jacobs, and Cuban, (1992), described three dimensions to show what is going on in medical education. Besides the 'intended curriculum' (the curriculum as a construct of the teachers), there are also, according to these authors, the 'actualized curriculum' (what students learn and what they remember), and what they learn but which actually was not described as teaching goals, the 'unintended curriculum'.

According to Cole's model in (Coles and Grant, 1985), the different parts of the curriculum described above are connected visually in a Venn diagram, (see figure 2.3 below).

Figure 2.3 Cole's model showing different parts of the curriculum

Curriculum on paper

Experienced curriculum

Curriculum in action
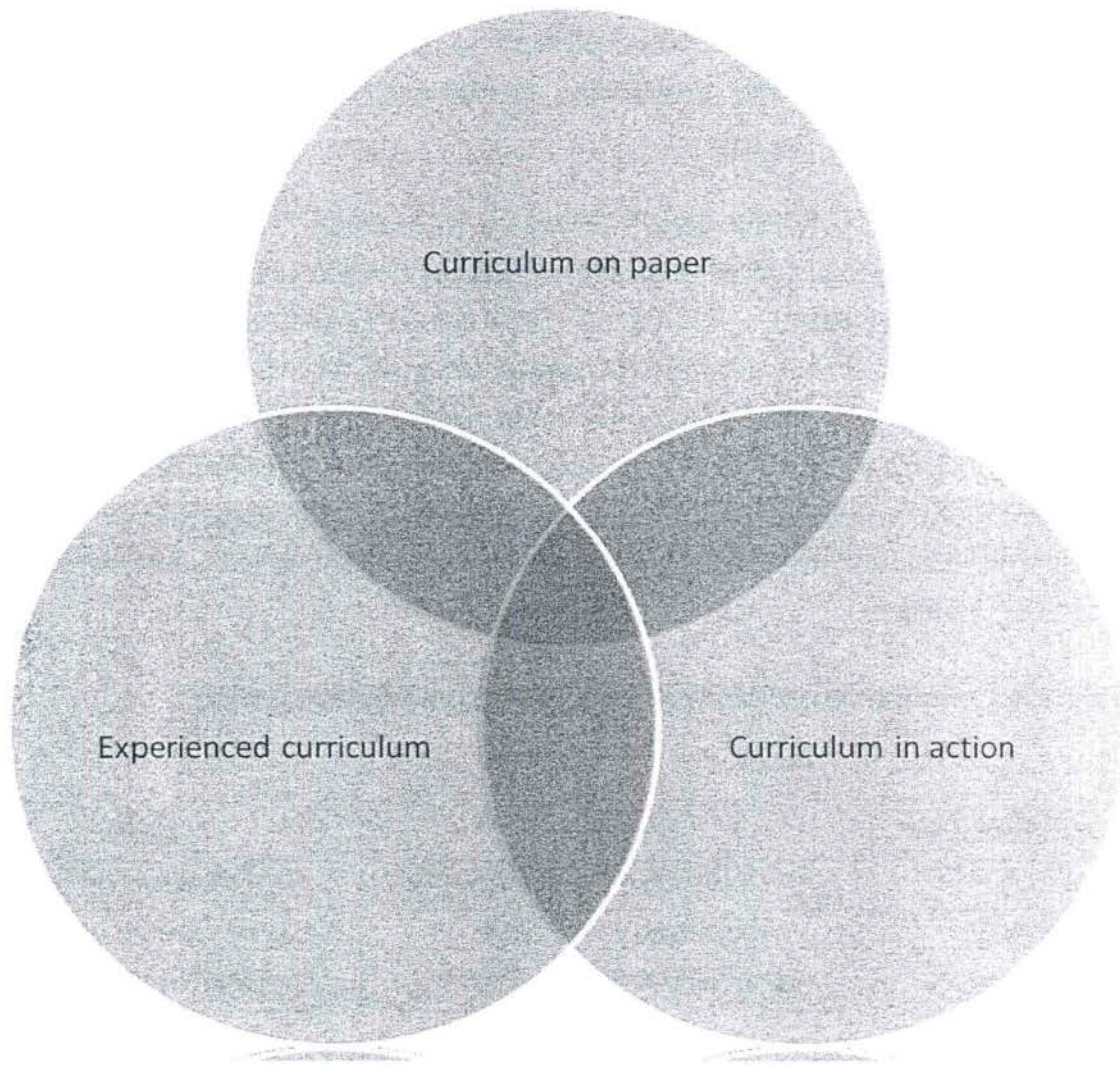
The first ring is called the **'curriculum on paper'**: This is the part of the curriculum that can be found in various student guides and in reports of all kinds of committees. The second ring is called the **'curriculum in action'**: It consists of the actual teaching as is offered to students through teaching, practicals and experiments. The third ring is referred to as the **'experienced curriculum'**: This is the part of the curriculum students' experience, and the learning that results from that.

It is possible to have some considerable 'mismatch' between the rings. For example, students can learn, in an informal way, a lot about the things they were not expected to learn. A part can be 'experienced by the students, but is neither mentioned by the student's guide (intended curriculum) nor taught (curriculum in action), and is also referred to as the 'hidden' curriculum. However, in practice, these dimensions do not overlap completely in most cases.

Close's and Nelson's models above allows us to indicate the importance of the different aspects of (what is written on paper, what is presented through teaching and experiments, and how all these are absorbed by the students). These models show that curriculum cannot be seen as a list of objectives only. What students 'absorb' can be quite different from what they are suppose to learn. What they are supposed to learn are determined by choices that have been made, and are made constantly, in the organization and process of education. The three dimensions discussed above are summarized in table 2.1 below;

Table 2.1 A comparison of Donabedian, Nelson and Coles models:

Donabedian	Nelson	Coles
Structure	Intended curriculum (*)	Curriculum on paper
Process	Actualized curriculum	Curriculum in action (*)
Outcome (*)	Unintended curriculum	Experienced curriculum

An asterisk (*) indicates which aspect or dimensions are used in our model.

2.8 Model Used to Evaluate the Quality of Student's Course Aspects and Learning Environment.

The models discussed above all fell somewhat short of our purpose, which is to study the student evaluation of the quality of their experiences in the aspects of their courses and learning environment in a well-organized way, not just focusing on the curriculum alone. Terry Moore, in a book titled Theory and Practice of Curriculum Studies published in 1978 described education as a group of activities which takes place at different logical levels. We therefore, want to look at those activities which takes place in the universities, which is capable of affecting the student's experiences of the quality of the aspects of their courses and learning environments. We are focusing on such activities which if carried out well; will enhance the student's evaluation of their experiences viz-a-viz the quality of teaching and learning, there by resulting in to the production of qualitative graduates with the right skills and knowledge.

This model will consider the student's evaluation of the quality of experiences at the course level in the light of (the clear goals of the course that is intended for the student to know and the facilities and materials expected or intended to be used in achieving the goals, the teaching received by the students, the workload given to the students and assessments actually experienced by the students, Emphasis on the student's independence, the learning strategies adopted by the students and generic skills the students are able to absorb or develop as a result of their experiences in their courses of study).

That is to say, the students view in relation to what is intended, what is actually experienced and what is actually learned is the frame or the dimensions of the model. The model permits the description of the connections between the different parts of the student's evaluation of their experiences that is connected to teaching and learning. Further more, the central importance of the outcome evaluation (what students actually learn) and their over all satisfaction with their course is also adequately addressed.

For this reason, a new model was developed from the above three models, which focused beyond the curriculum. (see figure 2.4 below). A dimension was chosen from each of the three models discussed above and the idea of the circles (Venn diagram) was copied from Cole's model.

Figure 2.4 The Evaluation Model Used in this Thesis

Intended
Curriculum

a

b   d

c

e   f   g

Learned   Curriculum
Curriculum   In Action
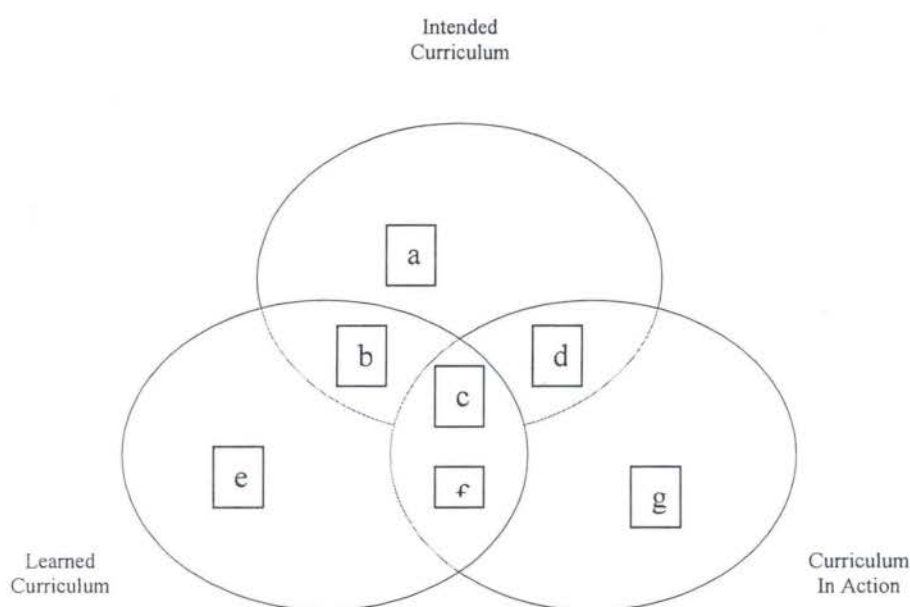
In (figure 2.4 above), again three circles were shown. However, they are named differently from those in Cole's model. The greatest difference was that a place was explicitly given to an important aspect of evaluation, namely, measurement of the final product of all educational efforts (outcome), which we will call the 'learned curriculum'. In this way, it is possible to find the strength of the student's evaluation of their courses and learning environment experiences that is geared towards improvement and enhancement of a qualitative teaching and learning, and also a 'mismatch' if it occurs.

We define our own model according to (Figure 2.4 above) as follows:

The Intended Curriculum: This is by analogy with Coles and Nelson, the part that teachers and management personnel have described as desirable. It consists of what is put on paper like course outlines, books recommended for the student's use , resource materials and facilities recommended and made available for the course e.t.c and of the standards and values that remain implicit. But in our studies of the student' evaluation of their course experience and learning environment, the intended curriculum is made up of their perception of clear goals of the course, facilities and materials recommended and available for the course.

The Curriculum in Action: This is the teaching, practical and experiments which is offered to the students by the teachers and instructors, which includes student's evaluation of their perception of good teaching, appropriate work load, appropriate assessment and emphasis on their independence.

The Learned Curriculum: This is what students 'pick up'. These are the educational effects of teaching offered by the teachers or being transferred unto the students. In our studies, this includes the learning strategy adopted by the students as they learn and the generic skills developed as a result of their learning. It is what Donabedian and other authors called outcome.

Now, the extent of overlap and possible mismatch can be described. Ideally, when the intended curriculum is valid and acceptable, we would expect considerable overlap of circles in the Venn diagram. Hence, the common divisor of all the dimensions [c] represents the larger part of the curriculum. However, in less ideal circumstances (so in reality), the rings do not overlap perfectly and mismatch can be described.

Only two dimensions of this model cover some parts of the curriculum. For example:

- Students can perceive a clear goal of their course and fail to perceive a good teaching or an appropriate assessment by the teachers or instructors [b].
- Students can perceive good teaching, appropriate workload and assessment by the teachers or instructors in their course, but perceive that no generic skills are developed as a result of the course[d].

- Students can perceive good teaching, appropriate workload and assessment by the teachers or instructors and perceive that they have developed the learning strategy and generic skills as a result of the course, and yet do not perceive to have clear goals of their course [f].

Some parts of the curriculum are covered by only one dimension, without overlapping the other two dimensions. For example:

- Students can perceive clear goals (Intended curriculum), but do not perceive good teaching and appropriate workload and assessment by the teachers or instructors (curriculum in action) nor perceive that learning strategies and generic skills (learned curriculum) were developed as a result of the course [a].
- Another part is students can perceive good teaching and appropriate workload and assessment by the teachers or instructors (curriculum in action), but do not perceive clear goals (Intended curriculum), nor perceive that learning strategies and generic skills (learned curriculum) were developed as a result of the course [g].
- Finally, students can perceive that learning strategies and generic skills (learned curriculum) were developed not necessarily as a result of their course neither as a result of their perception of clear goals of their course (Intended curriculum) nor as a result of their perception of good teaching and appropriate workload and assessment by the teachers or instructors (curriculum in Action) [e]. This is what students pick up without being taught or intended. Sometimes this is also called the 'hidden' curriculum. The institution or the course does not have much influence over this. It includes, for example, matters that student discuss out of class. (E.g. their opinion about their course of study), or even what they learn in an informal way (e.g. from senior friends who did the same course of study as theirs and working already).
- The model as is presented here has of course some restrictions. First of all, it is difficult to define the size of the rings in the Venn diagram in relation to each other, although the surface area of the rings suggests a corresponding importance.

This model will be used in order to indicate to what extent the three parts of the curriculum are interwoven with each other, especially as it is related to the student's evaluation of their perceived quality of their course and learning environment experiences which impacts on teaching and learning.

The three dimensions and the attributing factors of each dimension defining the model we proposed is presented by the figures shown below:

Figure 2.5 Intended Curriculum Dimension of Quality.

Clear goals → Intended curriculum ← Course level resources, materials and
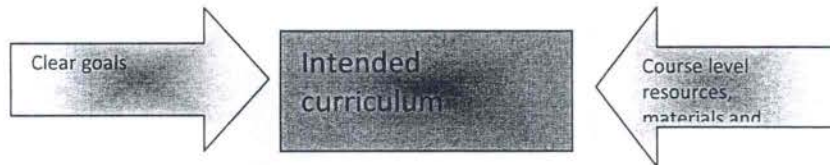
Figure 2.6 Curriculum in Action Dimension of Quality.

Appropriate work load

Emph. on Independ- ence

Curriculum in Action

Appropriate assessment

Good Teaching
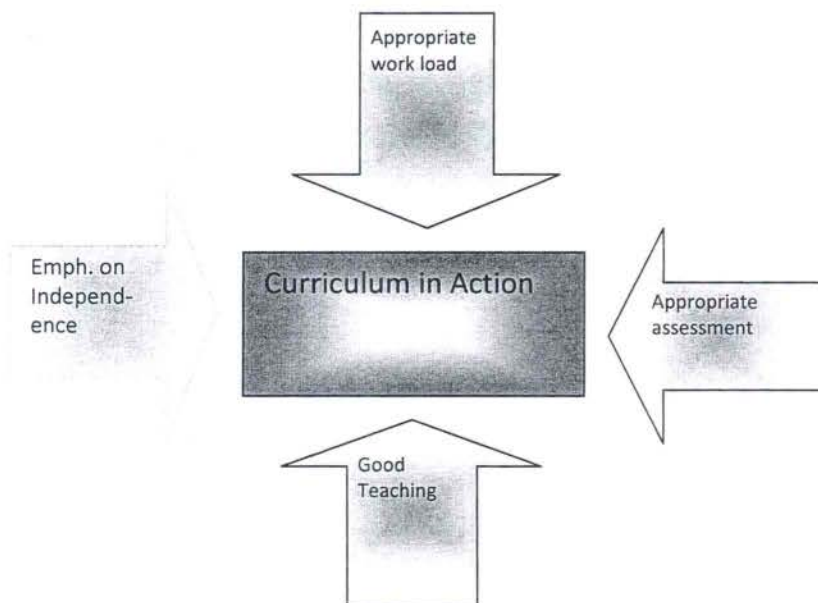
Figure 2.7 The Learned Curriculum Dimension of Quality.
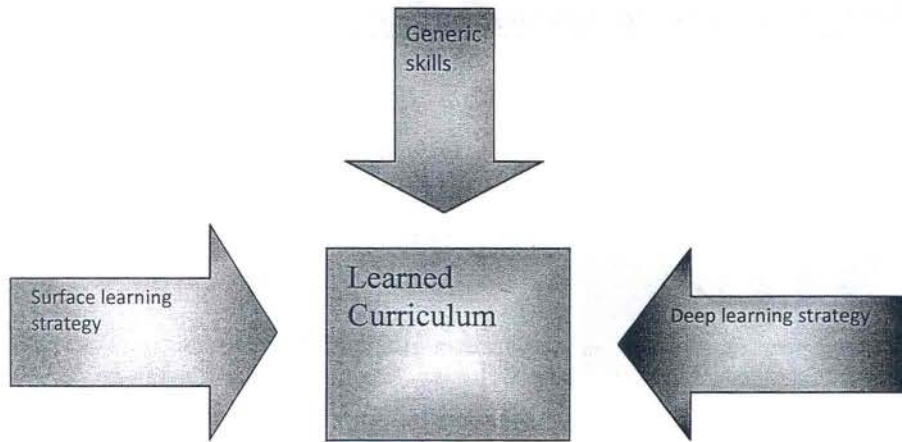
Measurement on the above factors and dimensions for this thesis is expected to be derived from the responses of the students to the Student's Course Experience Questionnaire (SCEQ). We believe that the students are the direct and active recipients of knowledge and skills and their ratings of the quality of their experiences of aspects of their courses and learning environment geared toward enhancing teaching and learning in their various courses and institutions will have the potential to contribute positively to this study.

CHAPTER THREE

DESCRIPTION, HISTORY AND CURRENT ISSUES ON EDUCATION IN NIGERIA

3.1 Introduction

Education, as an organized and sustainable communication designed to bring about learning must be planned in a pattern or sequence with an established aims and objectives, even with an established curriculum.

A successful education system is therefore increasingly seen as a vital element in every nation's social and economic development. Therefore, the development of effective education system and policies is a priority to every national government including that of Nigeria.

Nigeria is a federation of 36 states with the capital presently situated in Abuja. There are 774 local government areas and over 250 ethnic groups with 394 different languages spoken in Nigeria. The total population, according to Vital Facts and Figures of the World Education News and Reviews (WENR, 2004) is 137 million. This and many other vital figures rank Nigeria the largest nation on the African Continent. Although, Nigeria is a multilingual nation; Hausa, Igbo, Fulani and Yoruba are declared the major national languages spoken by over 50 percent of the population. English is the official and instructional language both in schools and offices.

Education in Nigeria faced many problems as a result of the multilingual nature of the nation, yet it was able to survive because of the attention given to it right from the time of the missionaries through the colonial government to the present day.

In this chapter therefore, we shall discuss more about the Nigerian Education system at all levels with more emphasis on the Higher Education (section 3.2),

History, evolution and development of the Nigerian education system at each level of education is also discussed in (section 3.3), History of quality control system in the Nigerian Education system is also discussed in (section 3.4), where Agencies and Administrative Control, regulating the education system (special commissions, policies and laws), evaluations and Assessments in Education, trade Unionism and educational developments are discussed and finally a short description of the current situation of the education system (section 3.5), including the recent reforms taking place in the Nigerian education sector.

3.2 The Nigerian Education System

The National Policy on Education referred to as the 6-3-3-4 system, was introduced in 1977 and revised in 1981. It marked a radical departure from the British system of education which Nigeria inherited at independence in 1960. Basically it adopted the American system of education and as a result the formal education system in Nigeria is six (6) years of primary school; three (3) years of junior secondary school; three (3) years of senior secondary school and four (4) years of university education leading to a bachelor's level degree in most fields (Nwagwu, 1997). Universal Basic Education (UBE) is free but not compulsory at any level of the UBE. Education is administered by three branches of the government. The primary education is under the control of the local government. Secondary schools fall under the jurisdiction of the state government, except for the so called "Unity Schools" which are administered by the federal government. Higher education is administered both by the state and federal governments and private individuals and bodies. The pre-primary school level, mostly administered by private individuals and bodies is not formal education level in Nigeria. A school year calendar in Nigeria extends over ten months, divided in to three terms of ten to twelve weeks each at the pre-primary, primary, junior and senior secondary school levels. We shall consider each level briefly in the subsection below.

3.2.1 The Pre- Primary Education

It is commonly called **"Nursery School"**. The ages of attendance are ages 3 – 4 and the duration is for 1 - 3 years depending on the age the pupil started attending. The start of universal enrolment at this level of education is age 4 and this level of education is not tuition free and is not compulsory. Both public and private nursery schools operate in Nigeria.

The third year of pre-primary education is comparable to kindergarten in the United States, with academic activities intended to provide additional preparation for children who are old enough to attend primary school but not yet ready academically.

3.2.2 The Primary Education

This level is commonly called **"Primary School"**. Primary education is the least level of formal education in Nigeria. It is also one of the levels that make up the Universal Basic Education (UBE). UBE in the Nigerian context is regarded as the foundation for sustaining life-long learning and providing reading, writing and numeracy skills. The UBE generally comprises of both formal and non-formal activities for functional literacy and it includes the Primary, Junior Secondary, Nomadic and Adult Literacy level and type of Education.

At the Primary Education level, education is tuition free (public schools) and is funded entirely by the government. Teacher's recruitment and remuneration at this level is the responsibility of the local government; infrastructural provision is shared by the federal and state government in the order 75% and 25% respectively; while instructional and learning materials provision is entirely the responsibility of the federal government The duration is for six (6) years and ages of attendance ranges from 6 to 12 (Grades 1-6); (Clarck N and Sedgwick, 2004). The start of universal enrollment is age 6. The curriculum includes subject areas such as integrated science, social science, mathematics, social studies, cultural arts, health and physical education, religious instruction, agriculture and home economics. Exit examination leads to the award of a Primary School leaving Certificate, which is required as an entrance

criteria in to junior secondary education (Clarck N and Sedgwick, 2004). Both public and private primary schools operate in Nigeria.

3.2.3 Secondary Education

The secondary education cycle lasts six (6) years and is organized in to junior and senior stages, both lasting three (3) years each.

The junior stage, commonly called "The Junior Secondary School" is also one of the levels that make up the UBE. This level of education is also tuition free for the public schools, and non-compulsory. The junior secondary schools exist as either single (boys only or girls only) and mixed (boys and girls together). Infrastructural, instructional and learning materials are provided 50% - 50% by the federal and state government; while teacher's recruitment and remuneration is the responsibility of the federal government entirely. The duration lasts three years, and ages of attendance ranges from ages 12 to15 (Grades 7-9). The curriculum for this level of education consists of compulsory subjects as follows;

English, mathematics, integrated science, social studies, introductory technology, business studies, home economics, art, French or Arabic, agricultural science, music, physical education, health education and finally students are required to select one of the major Nigerian languages (Hausa, Igbo and Yoruba).

An entrance requirement is the primary school leaving certificate and the exit examination at end of the third year of this level of education leads to the award of "The Junior Secondary School Certificate", (JSSC). At this level of education, students are streamed at the end of grade nine, according to their performances and abilities, in to the senior secondary schools, technical and teaching colleges or out of school in to vocational training centers or apprenticeships offering a range of terminal trade and craft awards.

The senior stage is commonly called "The Senior Secondary School or the Upper Secondary School". The senior secondary schools could also be single or mixed schools and most importantly could be found as one school in the same vicinity with the junior secondary schools, though they may be operated by

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two different managements, (i.e. two different principals and staff). Education is tuition subsidized at this level (public schools), and the government provides majority of the infrastructures and instructional materials, except for the "Unity Schools" which is completely tuition free. The duration is three years and the ages of attendance range from ages 15 to 18 (grade 10 – 12), with a universal enrollment through age 15; Education at this level is compulsory until age 18. An admission criterion in to this stage is the Junior Secondary School Certificate (JSSC). At the end of the third year (grade 12), an exit examination is conducted and this leads to the award of the "Senior School Certificate" (SSC). Secondary schools are operated by both public and private organizations in Nigeria.

There is a common core curriculum that consists of: English, mathematics, one Nigerian language, one science subject, one social science subject, and agricultural science or a vocational subject. In addition students must take three elective subjects, depending on the area of their interest in further education, one of which may be dropped in the third year. To obtain (SSC), candidates must successfully take a minimum of seven and a maximum of nine subjects (most commonly, six core subjects plus two electives). The SSC examination (SSCE) is conducted by the West African Examination Council (WAEC) and the National Examination Council (NECO) in May/June and June / July of every year. The second examination, the General Certificate of Education (GCE), is conducted by the same body in October/November of every year as a supplement for students who did not get the required credits from SSCE results. The certificate obtained from the senior secondary school after a successful completion forms the foundation for proceeding to any type of higher education. The certificate obtained lists only subjects in which the student is successful and the secondary school grading scale is shown in table 3.1 below, (Clarck N and Sedgwick, 2004);

Table 3.1 Secondary School Grading Scale

Nigerian Grade Range	World Education Services(WES) Equivalency
1	A
2	A

3-6	B
7	C
8	C
9	F
F	Fail

3.2.4 The Higher Education

Commonly called "Tertiary Educational Institutions", Higher education in Nigeria consist of the Universities, Polytechnics, Colleges of education and other professional training institutions. The system of higher education is binary; the university and non-university higher education. The tracts of these two types of higher education are quite distinct and there is very little opportunity for lateral movement between the two (Clarck N and Sedgwick, 2004).

Higher institutions in Nigeria are established by the federal or state government. In 1993, the federal government passed a legislation to allow for the establishment of private institution of higher education (Clarck N and Sedgwick, 2004). Each tertiary institution, especially the universities are autonomous and are administered by a council and a senate. Within the universities, the institutes and colleges are more or less autonomous.

The ages of attendance and duration of this level of education varies according to type of institution and the type of degree pursued. Admission to universities is highly competitive and based on results from the Senior Secondary Certificate Examination (SSCE), in which the students must gain at least five credits (English and Mathematics inclusive). Students who have the necessary SSCE results are eligible to sit for the University Matriculation Examination (UME) introduced in 1978 and conducted by the Joint Admission and Matriculation Board (JAMB).

Students sitting for the UME must register for English Language and any three subjects based on their desired major field of study. A fifty percent score is considered a pass; however, different universities have different minimum requirements based on different major fields of study. Students may also gain a "direct entry" to a degree program with a minimum of Merit pass in the

National Certificate of Education (NCE), or National Diploma (ND) and other advanced level certificates. The programs and degrees offered at the universities are in stages as follows;

- Stage I: Bachelor of Arts/Science degrees are a minimum of four years in length. Degree programs in professional fields such as Architecture, Engineering and Technology last five years. Degree programs in Human medicine, veterinary science, and dentistry last six years. Students may take single-subject honors degree or combined honors.

- Stage II: Master of Arts and Master of Science degrees are open to holders of a first or second class bachelor's degree in a related field. Masters degree programs are usually one year in length but, increasingly, where the qualification depends on research, it becomes a two year program.

  A postgraduate Diploma (PGD) is awarded after a completion of one year of graduate study in an unrelated field beyond the bachelor degree. PGD programs are generally offered in education and public administration.

- Stage III: Doctoral degrees are open to holders of master's degree in a related field. It is usually conferred after two to three years of study.

The non- university higher education consist of the technical colleges, polytechnics, specialized or professional training institutes and the colleges of education. Entry to colleges and polytechnics is based on college and polytechnic JAMB-administered entrance examinations combined SSCE results from secondary and vocational schools.

Programs and degrees offered at the colleges and polytechnics are also in stages and this includes;

Stage I: National Diploma (ND): A two-year short undergraduate program, which grants access to higher national diploma programs.

Stage II: Higher National Diploma (HND): An employment related higher national diploma, offered for two years. Admission is based on National Diploma and students are expected to have at least one year of relevant work experience after obtaining the National Diploma to be admitted for the Higher National Diploma (HND)

Colleges and specialized or professional training institutes offer various certificates and diplomas that may be obtained after one, two or three years based on the nature and field of study. The Nursing Council of Nigeria (NCN)

awards the Diploma of Midwifery after one year of theoretical and clinical postsecondary studies and the Registered Nurse Certificate after three years of postsecondary study.

The Institute of Medical Laboratory Technology (IMLT), awards the Associate Diploma of Medical Laboratory Technology and Fellowship Diploma after four or five years of postsecondary education.

The colleges of education are meant for the teacher education. Elementary-school teachers have traditionally been trained at the post – primary or post-junior school level. Students entering teacher-training programs from primary school enrolled in four to five-year programs; those entering after completion of junior secondary school enrolled in two-year programs. In both cases students attended grade II training colleges and those who successfully passed final examinations in their subject areas were awarded the grade II certificate/Higher Elementary Teacher's Certificate. Experienced primary school teachers or holders of SSCE may train for the Associate Certificate in Education II, which is a one-year program of post-secondary studies.

In 1998, the National Policy on Education (revised) has prescribed that the Nigerian Certificate in Education (NCE) is the minimum qualification required for teaching in the primary and junior secondary school and technical colleges and as a result of this the Grade II colleges and certification programs were abolished (ESA, 2002).

The NCE is a qualification that grants access to university-level studies for the teachers. Colleges of education awards the NCE after three years of full-time postsecondary study and the Technical Teacher's Certificate requires one additional year of study. Several colleges of education also prepare their students for Bachelor of Education (B.Ed) degrees at the universities with which they are affiliated to. A B.Ed or single subject bachelor's degree plus one-year teaching certification diploma is required to teach at the senior secondary schools level. However, holders of specialized qualifications like National Diplomas awarded by the polytechnics can be employed to teach in secondary schools and technical colleges. Instructors at the teaching–training colleges are required to hold master's degree, while university lecturers in the same field are required to hold a doctorate.

The requirements for admissions in to the various teacher-training programs differ from one level to the other in terms of academic qualification. For admission in to the colleges of education, prospective candidates must have at least three credits in the senior school certificate examination (SSCE) including the chosen major subject of study and two other passes. In addition, prospective candidates for colleges of education are required to sit and pass the college of education matriculation examination. Table 3.2 below is the World Education Service's (WES) Grading Scale in higher education, (Clarck N and Sedgwick, 2004);

Table 3.2 World Education Service's (WES) Grading Scale

Scale 1	Scale2	U.S Grade Equivalents
A/AB	70-100%	A
B/BC	60-69%	B+
C/CD	50-59%	B
D	45-49%	C
E	40-44%**	C
F	0-39%	F

** Signifies the minimum passing mark and it may be lower depending on the year of graduation and the institution.

Some higher institutions give special preferences by organizing some remedial programs to assist students with deficiencies in one or two subjects in their SSCE results. Such programs are organized and managed by the various higher institutions involved; therefore their durations vary from institution to institution, but mostly it is for one year, after which a successful candidate is placed in to a definitive subject of his/her study and choice.

There are also some schemes incorporated in the Nigerian education system, such schemes as the "Open Apprenticeship scheme" adopted by the National Directorate of Employment (NDE) as one of its major programs to alleviate unemployment in the nation. We also have the adult education scheme, which is concerned with mass literacy and special education for the

handicapped. The above mentioned schemes are part of the Universal Basic Education (UBE) program.

All the schools and higher education institutions in Nigeria runs an academic calendar starting from October of each year and ends in June/ July of the next year, with two weeks break for Easter, two weeks break for Christmas and a long break of two months in the summer, i.e. from July to September.

3.3 Brief History of the Education System

Nigeria, shortly prior to independence in 1960 and some years after independence has been operating the British system of education. Prior to or before independence there were three types of educational traditions. These educational traditions are;

- The Indigenous (Traditional Education), which existed within communities and helps the communities to understand, appreciate and promote their cultural heritage.
- The Islamic Education, which also promotes the Islamic norms and beliefs.
- The Western Education, which was brought by the British Christian Missionaries, being Nigeria's Colonial masters. (Mkpa, 2006)
  The later education tradition is widely practiced in Nigeria today, from which the 6-3-3-4 system of education emanates. We shall be concentrating more on the Western Education in this section .

Western Education in Nigeria

Western education also called "Formal Education" in Nigeria is traceable to the efforts of European Missionaries around 1842. Education at this time was regarded as a fundamental importance to the spread of Christianity (ESU, 1997). Thus, education introduced at this early stage was interwoven with Christian Evangelism. The missionaries established and ran the early schools in Nigeria. They also designed the curriculum for such schools and devoted their meager resources to the opening of schools for young Nigerians. As we said earlier, western education consist of the primary education, secondary

education, technical education, teacher education, higher education and specialized programmes.

(i) PRIMARY EDUCATION

Primary education in Nigeria existed right from the time of the missionaries through the colonial government to present time. Because education received great attention at that time, the expansion of primary education in Nigeria has been on the increase. For example, the ten year plan of 1942-1953 made adequate provision for the extension of primary education facilities and primary education was provided in the villages with a strong bias suited to the local needs of the people and as a result there was nearly 50% increase in the number of primary schools and enrolments the primary schools at that time.http://www.onlinenigeria.com/education/index.asp?blurb=538

The introduction of Universal Primary Education (UPE) scheme in the 1950s by the then regional governments also helped to expand primary education. Consequently, there was great increase in the number of primary schools and enrolments. For example, in the western region of Nigeria, primary school enrolments rose from 400,000 in 1955 to 982,755 in 1957 and in the eastern region, it rose from 566,000 in 1956 to 1.3 million in 1957; while about 176,904 children were attending primary schools in the Northern part of Nigeria. http://www.onlinenigeria.com/education/index.asp?blurb=538

Prior to the Nigeria's independence in 1960, there was no uniformity in the length of time pupils had to spend at primary level, and there was no centralized system of examination for the First School Leaving Certificate (FSLC) in the country. Indeed each of the 12 states created at that time (1967) was responsible for her own primary education and examination. There was no national policy that guided educational practices in Nigeria at that time. The curriculum was also not changed until after the 1969 National Curriculum Conference and the formulation of the National policy on education.

The government's keen interest in education in the 1970s brought about many changes in the educational system at the primary level in the country. For example, there was uniform duration of studies at the primary school

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level. There was also a National Seminar in 1973 which led to the formulation of National policy on education in 1977 revised in 1981. As a result of this policy, the 6-3-3-4 system of education was founded, which specified the number of years for each level of education and the type of examination to be conducted at the end of each level of education.

The federal government, in its effort to make education accessible to all school-age children in the country, introduced universal primary education in 1976. This scheme attracted many children to primary schools which resulted in explosive enrolment in primary schools. For instance, primary school enrolments rose from 3,515,827 pupils in 1970 to 11,276,270 in 1988 and the number of primary schools increased from 35,433 in 1991 to 38,649 in 1995 all over the country. The enrolment in primary schools which was 13,607,249 in 1991 also grew to 16,190,947 in 1994 (Federal Office of Statistic) with 80% of these primary schools located in the rural areas. (National Primary Education Commission 1991).

The management of primary education in Nigeria has been moving from one body to another. The federal government is the principal financier and controller of primary education. However, the re-introduction of the National Primary Education Commission through Decree No. 96 of 1993, along with the structure of State Primary Education Board (SPEB) and Local Government Education Authorities (LGEAs); make these bodies responsible for the management and fund allocation in the primary schools sub-section. But presently, the National Primary Education Commission has been discharged of this responsibility since 1999.

In a nutshell, the primary education curriculum is richer and more elaborate now than what it was in the 1960s and 1970s. The mode of instruction has also changed and pupils are being taught basic things around their environment. The introduction of the Universal Basic Education (UBE) by the federal government is also an attempt to make education accessible and to make all citizens literate by the year 2010.

(ii) SECONDARY EDUCATION

Young Nigerians received secondary education as early as 1859, when the first secondary school was established in Nigeria. Many secondary schools were

established in the later part of the 19th century. Most of the secondary schools were patterned after the English grammar schools with emphasis on classical subjects; which were the requirements for both matriculation examination and admission in to training for professions. The duration of secondary school then was six years and at the end of these years, students took the Cambridge or Oxford School Certificate Examination.

The demand for secondary education was born out of necessity for manpower and educated people. The development of rail ways in the country created an enormous demand for clerks, accountants, commercial agents and dispensers. For example, out of 5,500 posts that existed in the country in the early 1900s, the estimated output at the secondary schools was between 200 and 300; and only 51 and 17 students were qualified in 1910 and 1914 respectively, for the clerical grade. Consequently, some regional governments awarded scholarships to students.

The expansion of secondary education from the 1960s was influenced by a number of factors, among them were the expansion of primary education; government's acceptance of Ashby recommendation for increased numbers in secondary schools; the revision of curricula; adoption of Addis Ababa plan which projected an annual intake of 45,000 secondary school students; acceptance of Dike and Banjo Commission's recommendations; and, the public criticisms of secondary grammar schools programme. Consequently, there was a great increase in the number of secondary schools and their intake between 1960 and 1963. For example, the student population rose from 135,434 in 1960 to 211,879 in 1963. By 1970, the enrolments rose to 310, 054 for all the states in Nigeria (Fafunwa, 1974). There was a rapid development of secondary education in the country with the 6-3-3-4 system of education and the taking over of schools by the federal government. Secondary school enrolment rose to about 1.9 million in 1990.

The number of secondary schools grew from 6,002 in 1991 to 6,074 in 1995 showing an increase of 1.20 percent. This slow rate of development was because of general economic hardship in the country and the fact that the government did not establish more secondary schools during this period. Surprisingly however, there was more than fifty percent increase in the number of students in secondary schools in Nigeria. Enrolment, which stood at 2.9 million in 1990 rose to 4.48 million in 1994 showing a growth rate of

53.39 percent. The secondary school level operates within the guidelines provided by the National Policy on Education (1981); where the objectives of secondary education, the caliber of teachers to teach and their qualifications, as well as the curriculum content and the methodology to be employed are stipulated.

With the introduction of 6-3-3-4 system of education, the secondary schools students ceased to take West African School Certificate Examination. Instead, they take Senior Secondary School Certificate Examination (SSCE). With effect from the year 2000, students in secondary schools began taking Senior School Certificate Examination organized by the National Examination Council (NECO). The management of secondary schools in Nigeria is by the National Secondary School Board (NSSB) through the various State School Management Boards (SSMB).

(iii) TECHNICAL EDUCATION

Technical education had been accorded low priority in the Nigerian educational system right from the inception of western education in Nigeria. However, between 1808 and 1935, there was organized technical and vocational education in Nigeria. By 1966, there were already 66 technical and vocational training institutions in Nigeria. These institutions prepared students in pre-technical and pre-vocational education. They also prepared artisans or craftsmen in skilled trades.

The duration of the courses was three years (for intensive instruction in classroom work and work shop practice) leading to the City and Guilds of London Institute Certificate at the intermediate level, the Federal Craft Certificate and Ministry of Labor and Trade Test, Classes III and II. On completion, students move to polytechnics or federal universities of technology through Joint Admission Matriculation Board (JAMB) organized examination.

The demand for technical and vocational education was as a result of the National Policy emphasis on technical and vocational courses at junior secondary school level. As a result, the number of vocational and technical schools in Nigeria rose to 320 in 1991. However, this figure dropped to 260 in 1995 indicating a decline in growth rate of 19.75 percent. The enrolment in

these schools also decreased from 1,425 in 1991 to 1,342 in 1995 showing a decrease of 5.82 percent over the period.
http://www.onlinenigeria.com/education/index.asp?blurb=538

(iii)TEACHER EDUCATION

Teacher education has also witnessed tremendous growth in Nigeria right from when the first teacher training institution was established at Abeokuta in 1853. By 1926, there were 13 teacher training colleges with student population of 320.

The number of teacher training colleges and student enrolment rose to 53 and 3,026 students in 1948 respectively. The curriculum consisted of New Testament Critism, Christian Faith, School Method and Management, Hygienic, Geography, History, English, Arithmetic, Local language, Rural Science and Carpentry.

The federal government established more teacher training colleges and also provided allowance to people who opted for teacher education through a "crash programme". The introduction of National Certificate of Education (NCE) and degree programmes in education in the universities actually helped to influence the development of teacher education in Nigeria. For instance, the number of teacher education institution dropped from 287 in 1962 to 160 in 1970, while enrolments rose from 31,170 in 1962 to 32,314 in 1970. The numbers of primary school teachers teaching in Nigerian primary schools were only 1,857 by 1970. But by the year 1977, about 197,750 teachers were teaching in primary schools. (ESU, 1989).

Furthermore, the number of colleges of education in Nigeria rose to 54 while the enrolments in them increased to from 60,324 in 1991 to 70,613 in 1995, indicating a growth of 17.06 percent. With the facing out of the teachers training colleges and establishment of National Teachers Institute (NTI), the number of teacher education institutions continued to decline. However, more teachers are being prepared through distance learning programmes sponsored by NTI programmes. The government also decided to maintain the minimum standard for colleges of education and also to realize her dream of making the National Certificate of Education the minimum qualification to teach in primary schools in Nigeria. As a result of this realization, in-service

training opportunities have been created for those who want to upgrade their knowledge and keep abreast of new developments in their fields.

(iv) HIGHER EDUCATION

The education system of Nigeria entered the tertiary (higher education) level with the establishment of the Higher College Yaba in 1932 (officially opened in 1948) by the British colonial government for the provision of skilled and professional middle-level manpower in some professional areas (Medicine, Agriculture, Engineering and Teaching). The graduates of Yaba Higher College received a diploma certificate. The Yaba Higher College transferred to Ibadan in 1948 and metamorphosed in to the University College, Ibadan, where it offered degree courses of the University of London. Thus the pattern was set for proprietorship of universities to be exclusively that of government, until recent times. The University College, Ibadan, a federal institution, was the only one university in Nigeria until October, 1960, when the government of the Eastern Region established University of Nigeria, Nsukka. The other important higher education institutions at that time were the Nigerian Colleges of Arts, Science and Technology located in Zaria, Ibadan and Enugu.

The establishment of regional Universities in the early 1960s followed the pattern of University of Nigeria, Nsukka. The difference was the conversion of the existing Nigerian Colleges of Arts Science and Technology in to universities with regional governments as proprietors. Thus, the Nigerian college of Art Science and Technology at Ibadan became University of Ife in 1962 (now Obafemi Awolowo University), while the Nigerian College of Arts Science and Technology in Zaria also became Ahmadu Bello University, Zaria in 1962. The Nigerian College of Arts Science and Technology in Enugu was absorbed by University of Nigeria Nsukka as its Enugu Campus. University of Lagos was established by the federal government in 1963. In 1963, the then Middle West state government opened the University of Benin. Consequently among the six first generation universities in Nigeria, two (Ibadan and Lagos) had the federal government as their proprietors while four (Nsukka, Zaria, Ife and Benin) were owned by the state governments.

In 1975, the then military government took over all the existing university and shortly after the take over; the government established a decree called

Decree No.46 of 1977, which prohibited the establishment and ownership of universities by any state government, or voluntary agency or private persons. As a result, the number of federal universities increased to 12 (one in each of the then states of Nigeria).

During the "Second Republic" of democratic rule in 1979, the constitution of Nigeria transferred the university matters from the "Exclusive Legislative List" to the "Concurrent Legislative List". Both the federal and state governments were given the power not to only legislate on universities, but also the power to establish and operate their own universities. As a result, 12 more universities were established between 1980 and 1999, of which almost all of them were opened by state governments in the southern part of Nigeria.

The 1979 constitution paved way for the first incursion of private universities, polytechnics and colleges of education. The first private university established in Nigeria was the Tanderm University at Owerri in 1980 by Dr. Basil Nnanna. Although this step was challenged by the then Imo state government, the Supreme Court eventually ruled in Dr. Basil's favor and from then hence forth, many individuals, religious organizations and groups, notably in the southern part of Nigeria, began to open private universities. The situation became so uncontrollable and chaotic that one of the first things the Military government of December 31, 1983 did after coming in to power was to promulgate Decree No. 14 of 1984. The decree abolished all existing private tertiary institutions and prohibited the opening of new ones; and this brought sanity in to the education system if Nigeria. To ensure that both federal and state universities were being properly developed and controlled, Decree No. 16 of 1985 empowered the Federal Ministry of Education through the National Universities Commission to inspect, assess and accredit academic programmes in the institutions. The Decree is known and called the Minimum Standards and Establishment of Institutions Decree.

In 1999, when the democratic government of the forth republic came in to power, the second coming of the private universities took place; and the out going military government announced the approval of four private universities before leaving office. In 2002, another four private universities were established and by 2004, more other private universities were created. Generally, the development of university education in Nigeria has been no less spectacular. For example, from 6 in 1972 to 13 in 1980, Nigeria had 42 universities in 1990. Similarly, the enrolment of 18,448 in 1972 and 53,000 in

1980 rose to 126,285 in 1985 in 24 universities. There are rapid growth in university education between 1986 and 1988. Within this period, the enrolment in the 24 universities grew to 160,767 (Federal Ministry of Education, 1990). Based on the 42 universities, it was estimated that enrolment in 1999 was as high as 500,000. There are 25 federal universities, 15 state universities, 8 private universities, as well as 5 university centers in Nigeria as at 2004. (NUC, 2004). University education is still tuition free in the federal government universities and the mode of admission is through JAMB Examination. Many areas of specialization have been developed in various universities and many graduates are supplied to the economy. For example, the man power supplied to the Nigerian economy by the Nigerian universities in 1991 was 28,139 while it grew to 30,412 in 1995. This reveals 108.08 percent growth rate over the period.

The great desire of Nigerians, both young and old, to obtain university degrees and diplomas in what (Dore, 1976) referred to as the "Diploma Syndrome or Disease" is likely to be the rationale behind the establishment of more private universities in Nigeria. We certainly need to create more opportunities for more access to higher education, but we must also reckon with the great necessity to maintain high academic standards and discipline in the tertiary institutions. Private universities help to provide more access, diversity and competition, but it must be good and qualitative ones. In his words (Nwagu, 1998) said concerning private educational institutions, "the informed prediction is that the good ones will survive and prosper while the bad ones will die a natural death".

In a similar development to that of the universities, three private polytechnics were established for the period between 1990 and 1999. The number of polytechnics in Nigeria has generally increased steadily from 27 in 1987 to about 36 in 1991 and 43 in 1995. The enrolment in the polytechnics showed a slight decline from 60,533 in 1987 to 60,413 in 1991. However, from 1991 the enrolment increased from 60,413 to 92,364 in 1995 showing a growth rate of 52.89 percent. Also following similar developments in private universities and polytechnics, three private colleges of education were created from 1971 to 1990.

(v) SPECIALIZED PROGRAMMES

Other areas of education which are fast growing are the Nomadic and Migrant fisher men education for nomadic people and migrant fishermen children of the riverine areas of Nigeria. These programmes are to make education accessible to every school age child in Nigeria. The aim is to make these children attain functional literacy and numeracy. The total number of nomadic schools in Nigeria in 1991 was 242 with the population of 14,088 while migrant fishermen schools by 1996 numbered 135 with pupil enrolment of 9,246 and 252 teachers.

The government blueprint and action plan for the eradication of mass illiteracy is yet another programme to provide equal education opportunities for all Nigerians. This programme has helped to reduce the rate of illiteracy in Nigeria. The plan is to make literacy available to every Nigerian in the nearest future. These programmes are managed by a Commission (Nomadic) and Agency for Mass Education (Adult and non-formal). Other sectors of the economy are represented in the commissions that handle these programmes. For instance, the management committee for mass literacy has representatives from Nigerian Educational Research and Development Council (NERDC), National Directorate of Employment (NDE), Directorate of Food, Roads and Rural Infrastructure (DFRRI), Women Development Commission, National Library Board, Nomadic Education Commission. Non-governmental organizations (NGOs) have featured prominently in the development of education for these groups of people.

3.4 History of Quality Control System in Education in Nigeria

When we talk of quality control system in education, we mean an educational system designed to control and deliver qualitative educational products and services. Quality is one of the most important thing looked forward by either a customer or a producer of goods and services. Every educational system is supposed to design and deliver qualitative means of education to its clients (Pupils and Students) of various educational institutions at all levels that constitute the education system. What goes on in the education system affects the quality of delivery of education and the quality of knowledge and skills acquired by the products of the education system. Thus why control schemes for regulating the system with the view to maintain quality of

education is a challenge to every education system including that of Nigeria Therefore, we shall study the quality control system of the education system of Nigeria under the following considerations;

- Agencies and Administrative Control
- Regulating the education system (special commissions, policies and laws)
- Evaluations and Assessments in Education
- Trade Unionism and educational developments.

3.4.1 Agencies and Administrative Control System

Both the 1979 and 1999 constitution of the Federal Republic of Nigeria made provisions for the administrative control of education in the country. Section 18 of both constitutions spell out the national educational objectives with the opening statement, "Government shall direct its policy towards ensuring that there are equal and adequate educational opportunities at all levels." The National Policy on Education (FRN, 1977, 1981 and 1998) echoed the same educational objectives. Earlier in section 13 of the 1999 constitution which introduced the Fundamental Objectives and Directives Principles of State Policy, the following emphatic directive is given:

It shall be the duty of and responsibility of all organs of government, and of all authorities and persons, exercising legislative, executive or judicial powers, to conform to, observe, and apply the provisions of this chapter of this constitution. (FRN, 1999: A882).

It is clear from above that the power to provide, organize, administer and control education in Nigeria has a solid constitutional backing. The constitution also specifically empowers the National Assembly and state house of Assembly to make laws on university and technical education, post primary and primary education, and professional education. They are also conferred the powers to establish institutions for the provision of the desired type of education (FRN, 1999:A1068... Item L, Paragraphs 28-30). The local government councils are also conferred the responsibility for the provision and maintenance of primary, adult and vocational education. These provisions and declarations in the constitution, the National Policy on Education and other governments (Federal and State) education laws, circulars, documents guidelines and manuals collectively form the legal basis for the administrative

control of education. We shall consider some of these key agencies for such control:

1. MINISTRY OF EDUCATION AND INSPECTORATE DIVISION

Federal and state governments including the Federal Capital Territory Abuja have Ministries of Education as the principal agency for the planning, organization, control and administration of the education system. Each Ministry of Education (federal or state) normally has four operational units often called departments. These includes Personnel Department; Planning, Research and Statistics Department; Inspectorate Department; and finally, Finance and Supplies Department. There is of course the central administration from where the minister or commissioner and permanent secretaries exercise their overall authority, coordination, supervision and control. The minister or commissioner is the political head of the federal and state ministry of education respectively, while the permanent secretaries (at federal and state level) are the professional heads of the ministries.

The National Policy on Education (FRN, 1998) outlines the responsibilities and objectives of each of the above departments within the Ministry of Education. Of a special interest to us is the Inspectorate Department of the ministry of education, because it is concerned with the supervision of schools to oversee maintenance of standards and curriculum review and development. The Inspectorate department is also concerned with making functional suggestions on evaluation of student's academic achievements through examinations and continuous assessments at all levels of education. Below are the goals of the inspectorate department of the ministry of education as outlined in the National Policy on Education (1998, 45).

- Set, maintain and improve standards in all aspects of the school system at all levels of education.
- Ensure uniform standards and quality control of instructional activities in schools through regular inspections and continuous supervisions.
- Obtain information and offer practical solutions to problems of teachers and institutions.
- Encourage dissemination of information on innovation and progressive educational principles and practices in the school

system through publications, workshops, seminars, conferences etc.

HISTORY OF INSPECTORATE SERVICES IN NIGERIA.

The first known record of inspectorate services in West-Africa took place in 1882 (ESA, 2002). When the colonial government got involved in the maintenance of standards of schools, Reverend Metcalf Sumter was appointed as Her Majesty's inspector of schools; because almost all the educational institutions were run by the Christian missionary bodies. Educational inspectorate services began in Nigeria as far back as 1889, when Henry Carr, a distinguished educationist of black parentage was appointed as the sub-inspector of schools in the colony of Lagos.

The real birth of an inspectorate service, as distinct from a one-man inspectorate, took place in 1906, where the colony of Lagos and the southern protectorate were broken down in to three sub-zones and an inspector was appointed for each. Further expansion took place between the 1930s and 1940s, in the form largely of distinguished inspectors known as superintendents of education from education officers, who were school-based officers engaged in teaching. Similarly, the restructuring of the 1930s and 1940s occurred also in the northern protectorate, but the heads of inspectorate offices in areas outside the headquarters are referred to as the provincial education officers.

In 1955, the western part of Nigeria established its own inspectorate service, and this made the Eastern and Northern part of Nigeria to have their individual inspectorate services. The setting up of Federal Inspectorate Services followed in the years 1967-1970, and it was born out of recognition by the Joint Consultative Committee on Education (JCCE) of the need for uniform standard of education in the whole country. The Federal Inspectorate Service (FIS) was inaugurated in September, 1973 as an autonomous body. It had its own budget, procured its own facilities and equipments and the head was largely in control of the appointment of and deployment of his staff. Outstanding, competent and effective staff was carefully selected, and are strongly motivated and followed a strict code of conduct for ensuring quality in education at all levels of education in Nigeria. The organization was well

resourced and inspection reports elicited desired prompt responses from teachers and school proprietors and so it was easier for the organization to achieve a good success and a high level of effectiveness in enforcing an equal standard in education in the whole country.

The vibrancy of the Federal Inspectorate Service (FIS) was shattered in 1988, when it was robbed of its autonomy and was reduced to a department of the Federal Ministry of Education by the promulgation of the Civil Service (reform) Decree. This immediately removed the entitlements of FIS to special funding and with this reduction in funding and other resources; the capacity of inspectors to carry out regular visits to schools also suffered a decline. As a result, the staff morale and influence waned, thereby compounding the feelings of helplessness in the face of observed rapid decay in quality and standards of teaching and learning in schools. The situation was not helped either by the rapid turnover of directors in charge of the department whose officers had ceased to expect to be provided with opportunity for self-development.

The turning around of the Federal Inspectorate Service started again in 2000 under the Federal Government of Nigeria/UNESCO Programme. A workshop was held which was focused on collaboration on capacity building and also to encourage inspection officers to see the value of using the same criteria in assessing schools as they update the skills of these officers in school inspection.

Other steps which have since been taken to further the process of reinvigorating the Federal Inspection Service and indeed quality assurance system in the country include the publication of inspectors manual and the Training Guide by the Federal Ministry of Education, updating Inspection Guidelines, and according inspection a prominent slot in the Education Sector Analysis (ESA) Project activities.

The general assessment of the Inspectorate today is that it has not lived up to expectation. This, however, is attributable to the many problems and handicaps which have made it very difficult for the inspectors to effectively perform their duties. These problems include shortage of manpower, mobility and funds. Consequently, quality of education and standards can neither be maintained nor monitored and improved upon in the education system. It is one thing to have good policies and programmes, and it is quite another thing

when it comes to providing funds and facilities to enhance implementation and effective performance.

2. LOCAL GOVERNMENT EDUCATION AUTHORITY (LGEA) AND NATIONAL PRIMARY EDUCATION COMMISSION (NPEC).

Local government councils, as the third tier of government and one nearest to the people, have always been recognized as important stakeholders in the management of education in their areas of jurisdiction. Therefore, they are given responsibilities as agencies of administrative control, especially at the primary education level. Right from the colonial and pre-independence era, local or district councils collaborated with the missionaries and communities to provide and control primary, adult and non-formal education for the people.

In 1988, the National Primary Education Commission (NPEC) was formed by Decree No. 31 of 1988; to participate more effectively in the organization and control of primary education. The Decree on (NPEC) was altered and was reflected in the Decree No. 3 of 1991, which was later amended by Decree No.96 of 1993 in order to make the commissions and local education authorities (LEA) more effective and efficient in the management, funding and control of quality of primary education through the creation of the National Primary Education Fund (NPEF).

Some of the responsibilities of the local education authorities as specified in the NPEC decree of 1993 are the day to day administration of primary schools, which includes appointment, transfers, promotion, discipline, payment of staff salaries allowances and benefits. The agency also takes care of the general maintenance, supply of instructional materials and equipments, submission of annual reports, annual estimates and accounts, and monthly reports to the education board. Finally, the agency supervises schools and education committees to ensure that quality and uniform standard of education are enforced at the primary education level.

3. EDUCATION BOARDS

The recognition and existence of Education Boards as very important agencies of administrative and quality control in education dates back to the West African Education Ordinance of 1882. In 1887, the Education Ordinance for the Colony and Protectorate of Lagos gave more powers and responsibilities to the Education Board and as Nwangu, (1993) pointed out, the board had powers to establish local education boards and to decide where and when to establish new government schools. The Education Board decides the criteria for schools to receive grants-in-aid, the award of certificates to teachers and the appointment of school inspectors.

There are different types and description of Education Boards; the State Primary Board (SPEB) which is operational arms of the National Primary Education Commission (NPEC) and the State Post-Primary Education Board (SPPEB) in the states of the federation. The State Primary Education Board and the State Post-Primary Education Board in conjunction with the Local Education Authorities brought about the successful implementation of the Universal Basic Education (UBE) progaramme in 2002; which provided free and compulsory primary and junior secondary school education for all children aged 6 to 15 years.

At the institutional level, each primary school has a management board while each secondary school has a governing board. The boards perform mainly guideline and supervisory roles to make sure that quality is embedded and controlled in every programme of the schools. The boards also assist school heads and parents teachers association (PTA) in the provision of good management and development in schools. The higher education institutions like the universities, polytechnics, colleges of education and research institutes, each has either a governing council or a governing board for similar purposes at the higher institutions of learning.

4. TEACHING SERVICE COMMISSION

Many state governments have a teaching service commission responsible for the recruitment, deployment, in-service training, welfare and discipline of teachers. The commission is an administration control outfit whose membership comprises seasoned administrators, former teachers and

representative of teacher's union. Apart from ensuring that the teacher's ethics and code of conduct is built in the teacher's manual or handbook, the teaching service commission determines the condition of service for teachers in the state of jurisdiction and stipulates the responsibilities of different cadres of teachers.

4. NUC, NBTE, AND NCCE.

The National Universities Commission (NUC) established in 1962 and legalized by Decree No. 1 of 1974; the National Board for Technical Education (NBTE) created by Decree No. 9 of 1977 and National Commission for Colleges of Education (NCCE) established by No. 3 of 1993 are vital parastatals of the Federal Ministry of Education for ensuring effective administrative control of higher education in the country. They help to plan, organize, manage, fund, supervise, monitor and control provision and development of university education and institutions; technical and technological education and institutions; teacher education and colleges of education; as may be appropriate to each commission or board.

The above agencies serve as intermediary body between the federal government and the respective category of institutions they control. Therefore, it presupposes the liberty and responsibility of the different categories of higher education institutions scholars and administrators to plan, organize, manage and control in the best way possible, the academic programmes and activities of the higher education institutions towards the attainment of the objectives of teaching, research and community service. That is to say, the concept of institutional autonomy should have a universal application and implications all over the categories of higher education institutions in Nigeria; Even though, government, through these agencies, will retain the right to inspect and accredit the higher education institution's academic programmes to ensure high standards and quality of education.

3.4.2 Regulating the Education System (special commissions, policies and laws).

In order to regulate and control what goes on in the education system, the following mechanisms are made by the federal government;

- Setting of some ad hoc special commissions on particular issues of education.
- Formulation of specific policies.
- Promulgation of laws.

We shall talk briefly on the above mechanisms especially those ones that brought about educational development and quality to the system.

SPECIAL COMMISSIONS

Special ad-hoc commissions or committee on issues of education in Nigeria have been set up over the years at both federal and state government levels. Most influential ones among others in the federal government level are as follows;

1. ELLIOT COMMISSION, 1943

This was a commission set by the then British secretary of state for the colonies of Nigeria, Gold Coast (presently called Ghana) and Sierra Leon in respect of higher education in West Africa. The effect of the Elliot commission resulted in the establishment of the University College Ibadan in January, 1948 (Fafunwa, 1971); which later became the best West African University. The British parliament monitors and controls the University College Ibadan through an inter-university council (IUC) for higher education and this delegation make supervisions and recommendations based on the quality of education delivered and received in the above mentioned institution and also their counterparts in Gold Coast and Sierra Leon respectively. This marks the beginning of quality control system in higher education in Nigeria.

2. TECHNICAL COLLEGE ORGANIZATION FOR NIGERIA, 1949

In addition to the university college, the inter-university council delegation in 1946-1947, also recommended in its report that colleges of higher education be established in Nigeria (Fafunwa, 1974). In 1949, the colonial government appointed a two man committee consisting of F.J Harlow, principal of Chelsea Polytechnic London and W.H Thorp, Nigerian Deputy Director of Education (Technical), to assess the need for establishing a college of higher technical education. As a result of the report of this two-man committee, the Nigerian College of Arts, Science and Technology were established in Zaria, Ibadan, and Enugu, in 1952, 1954 and 1955 respectively under a unified control. The courses offered are mostly of three years duration and they include sectarian studies, surveying, architecture, teacher certificate, administration, accountancy, estate management and pharmacy. The entire curriculum for the above mentioned courses and colleges were regulated and controlled for quality by the British council.

3. THE ASHBY COMMISSION, 1959

The Ashby commission was appointed to conduct investigation in to the Nigeria's needs in the field of post-secondary school certificate and higher education over the next twenty years i.e. the period 1960-1980 (ESA, 2002).The significant input of this commission was the study on the high-level manpower for Nigeria's future, and this led to a number of recommendations on primary, secondary, teacher training, technical education, commercial, agricultural and veterinary education and finally university education. The commission recommended the establishment of three new universities. As a result, the three colleges of arts, science and technology in Zaria, Ibadan and Enugu, were transformed in 1962 in to Ahmadu Bello University, University of Ife and University of Nigeria, Nsukka respectively. (FME, 1960). In this commission, three Nigerians were included, one from each of the three regions, this marks the beginning of more participation by Nigerians in the regulation and control of higher education in Nigeria.

4. THE ASABIA COMMITTEE, 1967

One of the greatest factors that influence the quality of teaching in any educational institution is the condition of the teachers themselves. The Nigerian Union of Teachers (NUT) among other activities was most outstanding in fighting for better conditions of service for teachers. To avoid crises such as strikes, demonstrations and other kinds of showdown by NUT, which usually may affect the quality of teaching and learning in educational institutions, the Nigerian government on its part tried to set up several salary reviews commission. Among them includes the Gorsuch and Harragin commissions in the 1940s, the Morgan commission in the 1950s and the Adefarasin commission set up after the 1964 teachers strike. As a result of the Adefarasin's recommendations, the Asabia committee was set up in October, 1965, to look in to the grading of teachers duty posts in voluntary agency institutions and to recommend commensurate remunerations. For example, among other things the committee recommended the following salary structure at the federal level according to (Fafunwa, 1974);

- Grade III (Fail) holder: £156 - £243
- Grade II holder: £231 - £497
- Grade I holder: £355 - £762
- National Certificate of Education (NCE) holder: £641 - £1,116
- University Graduate : Uniform scale: £720 - £1,584
- University Graduate with teaching qualification: £762 - £1,584.

5. THE LONGE COMMISSION, 1991

Since the landmark Ashby Commission Report of 1960 on post-school certificate and higher education in Nigeria, there was no other commission appointed to take such a comprehensive look at tertiary education until 1990 when the commission on review of Higher education in Nigeria was set up by the president and probably one of the nationwide accreditation exercise in 2000 by the National University Commission (NUC, 2002).The Longe commission eventually submitted its report on October 11th, 1991, under the title "Higher Education in the Nineties and Beyond". Among the commission's terms of reference are;

- Reexamination of the availability and adequacy of academic staff in higher education and advice on training for teaching in higher educational institutions. Also the reviews of the general condition of service of staff in higher institutions to enable them deliver the right knowledge and skills.
- Reexamining the administrative structure in post-secondary and higher educational institutions with regards to specialized functions of their staff as well as their time and cost effectiveness.
- Investigate the nature, sources and criteria of funding in higher educational institutions with a view to improving the situation of funds for the procurement of teaching and learning facilities and guaranteeing steady source of funds for optimal functioning of these institutions.
- Reexamining the role of students in the administration of higher education institutions, especially in the area of perceived quality of education received.
- Review the admission system and requirements in to higher institutions, to favor students on merit on a larger percentage so that quality in education can not be compromised later.
- Propose eligibility criteria for the establishment of institutions of higher learning, in such a way that quality is considered a top priority.

With the above number of terms, the commission came up with numerous recommendations among which we will consider that of the admission as an example. On admissions with respect to the quota system, the commission's recommendation is as follows;

There should be a reduction of the percentage allocation to quota system in favor of the percentage based on merits spread over a defined period. For example, by an agreed date, say 2000, the geographical concession should be completely discontinued. As a result the commission proposed a transition timetable from 1990-2000 such that the positions of admissions percentage at the extreme years would be as shown in table 3.3 below;

Table 3.3 Admission Percentage Distributions in Higher Education in Nigeria

Category of students to be admitted	Percentage in the year 1990	Percentage in the year 2000 till date
Admission on merit	40 percent	70 percent
Based on catchments area	30 percent	20 percent
Based on disadvantaged states	20 percent	None
Based on discretion	10 percent	10 percent

The implementation of some of the Longe commission's recommendations brought about a great transformation in the higher education institutions with respect to admissions and quality of education at that time.

6. COMMISSIONS ON FUNDING

In the wake of the crisis in primary education between 1979 and 1988, the government has set up almost four commissions in succession to look in to the issues of educational funding. Among these are the following;

a). The presidential commission on the funding of primary education headed by Chief A.Y Eke, between October and December 1983.

b). The Onabamiro commission on alternative sources of funding education in 1984.

c). The Fafunwa commission on funding of education at all levels in 1984.

d). The technical committee on funding and management of education headed by Yahaya Hamza, Director-General, Federal Ministry of Education.

The major outcome of these commissions was the setting up of the National Primary Education Commission (NPEC) as a parastatal of the Federal Ministry of Education by Decree No.31 of 1988, which now oversees every aspect that has to do with funding in primary education.

POLICY DOCUMENTS

The major policy documents in the education sector of Nigeria are the **National Policy on Education** and the **National Policy on Science and Technology.**

1. NATIONAL POLICY ON EDUCATION (1977, 1981, 1998).

This was the culmination of series of landmark events in the development of education. It arose out of the nation's search for relevance in education after the attainment of independence.

The first event was the **National Curriculum Conference of 1969** which was organized by the newly created Nigerian Educational Research Council on behalf of the federal government. During the conference, ideas on what would be a relevant education system for Nigeria was discussed, and the report of the conference was published under the title "A philosophy for Nigerian Education" (Adaralegbe, 1972).

The second event was a national seminar held in 1973, under the chairmanship of Chief S.O Adebo to prepare the draft of the national policy on education based on the recommendations of the 1969 National Curriculum Conference. The report of this seminar was published by the federal government as a white paper entitled "National Policy on Education".

In the same year, an implementation committee made up of a seven-man panel was set up by the government, and in 1978 the committee submitted its blue print report. In 1979, the federal government issued a white paper on the report of the implementation committee titled "The Federal Republic of Nigeria National Policy on Education". The policy document and the implementation blue print have guided Nigeria's educational development since 1977.

The policy has however undergone three revisions, one in 1981, one in 1998 and the last one in 2004, though yet to be fully adopted (ESA, 2002). The revisions have been largely to take account of new developments in society as well as in the education system. The content of the policy is quite comprehensive, covering eleven different sections of education. These are:

- Philosophy and goals of education in Nigeria.
- Pre-primary education
- Primary education
- Secondary education
- Tertiary or higher education
- Mass literacy, adult and non-formal education
- Special education
- Educational services
- Financing administration and supervision of education
- Financing of education.

2. NATIONAL POLICY ON SCIENCE AND TECHNOLOGY (1986).

The Federal Ministry of Science and Technology was created in 1979 by the federal government to give leadership in the development of science and technology in Nigeria. In 1984, this ministry was merged for just one year with the ministry of education to become the Ministry of Education, Science and Technology, but later it was restored back to its autonomous status. The preparation of a national policy on science and technology was one of the first projects embarked upon by the ministry. The final document was produced in October, 1986, after a lot of various conferences held with participants from different walks of life and consultations at various committees. The document states the philosophy, objectives and strategies for implementation under eleven headings considered as the guide lines for the policy. The headings are;

- Manpower
- Capital goods
- Materials
- Energy
- Technology
- Priority areas in technology
- Military science
- Environment (Stability of the system)
- International exchange and cooperation in science and technology. (National Council for Science and Technology). The last two headings of the guidelines are under the broad title "National System for Science and Technology".

The issues of financing of science and technology are grouped in to three categories of funding agencies by the chapter three of the document and they are;

- Multinational Companies
- Indigenous Entrepreneurs
- Service Organizations.

The policy recommends that the federal government must make it a policy to allocate up to 5% of its annual budget to science and technology, while state governments earmark not less that 1% of its budget for the same purpose. The private sector's contribution to this same purpose should be in various forms including;

- "In house" or local contractual research
- Taxation
- Yearly levy as a percentage of gross income
- Philanthropic contribution.

The policy also proposes the establishment of a "National Science and Technology Development Funds (NSTF) by the federal government and this body should make funds available for the implementation of science and technology activities in accordance with the national policy guidelines and strategies.

EDUCATION LAWS

Western education in Nigeria, as introduced by the Christian missionaries in 1842, continued for 40 years without any national law or international law governing its operation. Each missionary organization handled the operation of its schools as best as it could with considerable variation from one Christian denomination to the other, and within each denomination from one school to the other. With the first grant-in-aid by the British colonial government to three missions (CMS, Roman Catholic and Methodist) in 1872, it became necessary for the colonial government to intervene in the running of the schools through laws designed to regulate the operations of these institutions. The first of such laws is made in 1882. Since then many more have followed such that at present (2009) there is quite a plethora of such laws.

In considering these laws, Nwagwu, (1993) gives a comprehensive account of the laws, but for our own case, we shall consider the major laws and it is convenient to divide the period, 1882 – 2009, in to four periods as follows:

1. Pre-Unification Colonial Period
2. Post-Unification Colonial Period
3. Independence Era
4. Democratic Era.

1. PRE-UNIFICATION COLONIAL PERIOD

In the early colonial period, Nigeria itself was not clearly defined as a country. The colonial powers had areas of influence all along the West Coast of Africa. There was tendency therefore to make laws covering areas which today constitute two or more countries. The laws are as follows:

THE EDUCATION ORDINANCE OF 1882

This ordinance actually covered the whole of British West Africa. Fafunwa, (1974) says the ordinance was adopted from the British Education Act of 1844. At that time, the colony of Lagos (presently in Nigeria) was jointly administered with the Gold coast (presently in Ghana). Few among what the ordinance did are as follows:
- It established education boards and set the criteria for government approval of grants- in-aid to schools.
- It provided the general rules and guidelines for the conduct of annual examinations for pupils.
- It established institutions for the award of teaching certificates to teachers.
- It led to the appointment of inspectors, supervisors and visiting teachers to monitor standards and maintain quality

THE EDUCATION ORDINANCE OF 1887

This was the ordinance specifically for Nigeria. It covered the same grounds that the 1882 ordinance covered, but it has the following in addition:
- Empowered the central education board to appoint Local Education Boards which carried out many of the functions but reported to the Central Education Board.
- Empowered the central board to award scholarships to poor students to receive secondary education.

THE EDUCATION CODE OF 1903 AND THE ORDINANCE OF 1908

The Education Code of 1903 was made for the Protectorate of Southern Nigeria. It covered such matters as institutional programmes, quality, conditions for payments of grant-in- aid and similar functions covered by the two earlier codes. One important difference was that the code was produced by the newly created Department of Education for the Protectorate. The ordinance of 1908 was enacted to cover the merged entity of Lagos Colony and Protectorate of Southern Nigeria, which was merged in 1906. The ordinance provided for the appointment of a director of education to head the department and superintendents to assist him. This is in addition to the cadre of inspectors which had been established by the 1887 code.

2. THE POST-UNIFICATION COLONIAL PERIOD

The Northern and Southern Protectorates were merged in the year 1914. Therefore the next set of ordinance and codes were for the entire country, although within them there was recognition of the two constituent units. The laws are as follows:

THE EDUCATIONAL CODE AND ORDINANCE OF 1916

This code devalued "payment by result" as an input in to consideration for grants-in-aid. Greater emphasis was put on inspector's reports on such matters as discipline, organization and management of schools, the quantity and quality of teachers, buildings and other facilities that will help enhance teaching and learning in schools.

THE EDUCATIONAL ORDINANCE OF 1926

This was consequent upon the Phelps-Stokes Commission Reports. First, the British government produced a "Memorandum on Education Policy in British Tropical Africa" in 1925 which attempted to regulate education not only in Nigeria but also in all the British Colonies in West Africa – Nigeria, Gold Coast (now Ghana), Sierra Leon and The Gambia.

The Education Ordinance of 1926 reflected the existence of the two political units in Nigeria. In fact there were two ordinances simultaneously

promulgated, namely: the Education (Northern Provinces) Ordinance 1926 gazetted as No. 14 of May 27, 1926, and the Education (Colony and Southern Provinces) Ordinance1926 also gazetted on May 27, 1926 (Yoloye, 1993).

The 1926 ordinance laid particular emphasis on the registration, grading and certification of teachers. Some of the provisions in these aspects created considerable dissatisfaction among teachers because it reversed some of the provisions of the 1916 ordinances. For example, Itotoh, (1993) reports that the 1926 ordinance prescribed a four- year course of training for pupil teachers instead of two years, to qualify for the award of the third class certificate instead of the second class certificate prescribed under the 1916 ordinance.

Also the 1926 ordinance provided for the demotion of some teachers who were already of classes one and two grades to class three grades (Igwe, 1990). The teachers protested vehemently and the controversy was a major factor in the formation of the virile Trade Union known as the Nigerian Union of Teachers (NUT) in 1931.

The two ordinances subsumed in the 1926 ordinance were followed by a unified Education Ordinance (No. 9 of 1942) which broadened the scope of the provisions of the 1926 ordinances. In spite of being a unified ordinance, the peculiarities of the two political units (North and South) were still reflected in some sections, especially in the composition of the Board of Education and the teaching of religious studies in schools.

In 1944, the Education (Amendment) ordinance 1944 was promulgated to amend the 1942 ordinance. The amendment concerned only the section that was related to the Colony and Southern provinces.

When the Marcpherson Constitution of 1952 established Nigeria as a federation with three regions, North, West and East, and the central territory of Lagos each with a greater measure of autonomy, separate education laws began to be enacted for each unit. Thus, the Western Region promulgated the Education Law 1954 (No 6 of 1955) which ushered in the Universal Primary Education (UPE). This was later amended in 1960 via the Education (Amendment) Law 1959, which came in to effect on January 14, 1960.

Similarly, the Northern Region promulgated the Education Law 1956 (No. 17 of 1956) and the Eastern Region promulgated the Education Law 1956 (No. 28 of 1956). The central Territory of Lagos promulgated the (Lagos) Ordinance 1957 (No. 26 of 1957). This was later amended by the Education (Lagos) (Amendment) Ordinance 1958 (No. 16 of 1958). The Northern Ordinance dealt with a general revamping of education, while the Eastern and Lagos Ordinances, like that of Western Nigeria, focused on universal primary education.

3. INDEPENDENCE ERA

The Constitution is the basic law of the country. However, other laws are made for specific purposes. But all are subject to the constitution. During the military regimes however, the constitution (or parts of it) is sometimes suspended and decrees and edicts becomes the laws of the land.

There are clear differences in the provision of laws, decrees and edicts between the different states of the federation reflecting the peculiar circumstances of the different states. As the nation grew older, however, it was felt that there was need for some coordination and even control at the centre. Consequently, a number of national coordinating bodies have emerged over the years such as the National Universities Commission (NUC), National Board for Technical Education (NBTE), National Commission for Colleges of Education (NCCE), Universal Basic Education (UBE) etc. the National Commission for Mass Literacy, Adult and Non- Formal Education. The National Policy on Education (NPE) has of course been the greatest unifying instrument.

Yoloye, (1993) identifies two trends in the evolution of educational laws in the country, namely:
(a). A trend towards differentiation and
(b). A trend towards uniformity.
He hypothesizes that the trend towards differentiation is strongest under the civilian regimes, while the trend towards uniformity is strongest under military regimes.

4. DEMOCRATIC ERA

The democratic era have been considered here as the period of recent democratic rule, when the military returned back to the barracks. This period is the period from May 29th 1999 up to this present day. One of the resounding law on education as spelt out by the section 18, sub-section 1-3 of the 1999 constitution states inter alia:

1. Government shall direct its policy towards ensuring that there are equal and adequate educational opportunities at all levels;
2. Government shall promote science and technology;
3. Government shall strive to eradicate illiteracy and to this end, government shall as and when practicable provide:
   - Free, compulsory and universal primary education,
   - Free secondary education. (Arikewuyo, 2004)

Now the above objectives, if properly examined, have some implication for education in Nigeria, especially the university education. The first one above implies that universities must be placed very close to the people, so that people would not have to travel far away before benefiting from university education. Okogie, (2004) reported that as at 2004, there are 53 universities in Nigeria. Of this total, 25 are owned by the federal government, 20 by state governments, while 8 are private universities. He however contended that the number seems to be inadequate because out of the one million candidates that sat for the University Matriculation Examination (UME) in 2004, the universities could only admit 154,000 (representing 15%). The point being stressed here is although the universities appeared to be evenly distributed for easy accessibility, the number of spaces available to guarantee adequacy is still very low. The constitution also enjoins that there should be equal university education for all citizens.

This implies that there should be no discrimination on the grounds of sex, tribe, religion or state of origin. This has to do with admission policy to universities, where by the quarter system has been the order of the day.

The second objective of the Nigerian education as spelt out in number two above has the following guidelines;

- A greater proportion of expenditure on university shall be devoted to science and technology;

- Not less than 60% places shall be allocated to science and science-based courses in the conventional universities and not less than 80% in the universities of technology.

However, the pattern of enrollments and graduations in some of the universities appears to be in sharp contrast to this policy guidelines. For example, University of Ibadan, which is the oldest and biggest university in the country, had 2,366(61%) of first degree graduates who studied arts and social sciences related courses out of 3,866, while 1,500 (39%) read science based courses during the 2000 university's convocation. (Convocation document, 2000).

Also in 2003, the University of Ibadan had 2,704 (67%) of Higher degree graduates who studied Arts and social science related courses while 1,357 (33%) studied science based courses. (University of Ibadan convocation booklet, 2003).

3.4.3 Evaluation, Assessment and Achievements in Education in Nigeria

Evaluation and assessment form very important component of the education system. Akpofure and Ndupu, (1998) have a comprehensive summary of the state of quality control in education in Nigeria. At the heart of quality control we find the following:

Prescription of minimum standards, Inspections and Supervisions, Evaluations and Assessments and finally Achievements. Achievement of an education system may be assessed along two broad dimensions:

1. In terms of immediate outcomes of learning such as results in public examinations.

2. In terms of long range outcomes such as the contributions of the products to national development, or the capability of the products for self-development in respect of employment and economic self sufficiency.

There are four types of assessment which the national education system employed, and they are as follows:

(a)   School based assessment

This involves the assessment of progress of students and pupils by their lecturers and teachers respectively; on a continuous basis through tests, home work, assignments, examinations, projects and other procedures against curricular goals. This is the basis of the well – known *"Continuous Assessment"* which the National Policy on Education prescribes.

(b)   Public Examinations

These are state or national examinations based on a common curriculum taken by all students of the schools concerned. Examples are:

- Common Entrance Examinations for selecting students in to Junior Secondary Schools
- Junior Secondary School three (JS3) Examinations for selecting students in to Senior Secondary School one (SS1)
- Senior School Certificate Examination (SSCE) for certifying levels of achievement at the end of Senior Secondary three.
- Joint Matriculation Examination (JME) for selecting students in to universities, polytechnics and colleges of education.

(c) National Assessment

These typically involves the administration of achievement tests to a systematic sample (not all) of pupils at particular grades and students at particular levels within the school system across the entire country. Such sampling may be based on states, gender, socio economic status, urban/rural settings, private/public schools etc. Very often measures of other variables are also made to ascertain students or teacher attitudes, teacher qualification, teacher/pupil or student's interaction, the context of learning, etc. Such assessments are policy oriented for they are designed not merely to compare the performances of various groups but also to identify causal factors in levels of achievement by pupils and students.

(d) International Assessments

These are similar to national assessments and have the same broad objectives of aiding policy. The main difference is that instead of sampling different segments of one country or one education system, comparable samples are taken from several countries or several education system and efforts are made to base the achievement tests on curricula which are

approximately common to all the participating countries. Like in national assessment, efforts are made to measure several context variables with a view to identifying causal relationships between context variables and achievement. Perhaps, the most outstanding examples of international assessments are those which have been conducted over the past 44 years by the International Association for the Evaluation of student's Achievement (IEA) in sciences, mathematics, languages, literacy, reading, classroom environment, early childhood education and computers. Another example ofcourse is the setting up of the "Monitoring of Learning Achievement" (MLA) projects in a number of developing countries to monitor performance of pupils at the basic education level; which happened to be one of the fallouts of the Jomtien Conference on Education For All.

Nigeria is one of the first nine countries in the world to undertake an MLA study. The others are Brazil, Lebanon, Mozambique, Sudan, Tanzania, Oman, Slovakia and Sri Lanka. (ESA, 2003).

The Nigerian study began in 1994 based on the selected learning areas of Numeracy, Literacy and Life Skills; and was administered to a sample of primary four pupils across the nation. The national report was published in 1997 (FME/UNICEF/UNESCO, 1997), and the country recorded a very low national mean score of 32%, 25% and 33% in numeracy, literacy and life skills respectively. This indicated a low level of efficiency of the education system. The latest of this same MLA study in Nigeria is the one conducted in 2003, and this time around it was extended to the secondary school level. The study assessed the level of competency of junior secondary school II and senior secondary school II students in Mathematics, English, Social Studies and Integrated Science at the Junior Secondary level and English and Mathematics at the Senior Secondary level. The national mean score for the junior secondary school are 25%, 32%, 38% and 43% for Mathematics, English, Social Studies and Integrated Science respectively; while that of the senior secondary level are 32% and 32% for Mathematics and English respectively. This performance is still depicting a low performance of the education system, resulting in to a serious point of consideration for policy makers. (ESA, 2004).

Consequently, over the years, a number of specialized agencies have been set up for evaluation and assessment in education in Nigeria. The most important ones are described below:

1. WEST AFRICAN EXAMINATION COUNCIL (WAEC)

West African Examination council (WAEC) was established in December, 1951, by an ordinance first passed by the Legislative Assembly of Gold Coast (now Ghana) with a temporary office set up in Accra. This action followed a series of events starting from 1948 when the University of Cambridge Local Examination Syndicate and the University of London Schools Examinations and Matriculation Council discussed with the West African Departments of Education the future policy of school examinations that would best suite the needs of West Africa. It was agreed in principle to establish a separate council to cater for and conduct examination in West Africa.

The proposal was effected by the mandate given to the then Director of the Institute of Education, University of London; to tour and assess the situation in The Gambia, Sierra Leone, Ghana and Nigeria. His report strongly supported the proposal and this was accepted by the four British colonies of West Africa.

Therefore, the 1951 Ordinance established the council and it was ratified by the remaining three countries and it charged the council with the following responsibilities:
- Determining the examinations required in the public interest of West Africa.
- Conducting such examinations
- Finally, awarding certificates after such examinations provided such certificates do not represent a lower standard of attainment than equivalent certificates of examining authorities in the United Kingdom.

In 1952, the first registrar of the council was appointed and had a temporary office at the West African Inter-Territorial Secretariat in Accra, which was later moved to a permanent site at Achimota in 1953. In the same year, the Nigerian office, which served as the seat of the deputy registrar of the council was provided at the Technical Institute (later Yaba College of Technology). In Sierra Leone and The Gambia, the council operated through the Department of Education until 1958 when an office was opened in Free Town for Sierra

Leone and a London office as well. The national office for the council in The Gambia was opened in Banjul (then Bathurst) in 1973.

In 1974, Liberia became the fifth member country of the council and two years later the national office of the council was established in Monrovia and was occupied by the council in 1977. The council got its uniform legal backing to operate in all its member countries as an international body in 1984.

The council conducted its first public examination in 1955 and thereafter has conducted series of examination annually up to date. The examinations includes

- National examinations which are restricted to the specific needs of the member countries, and these includes primary, junior and technical School Leaving Certificate Examination for The Gambia; junior and senior High School Certificate for Liberia, National Primary School and Basic Education Certificate Examination for Sierra Leone and Basic and Senior Secondary School Certificate Examination for Ghana.
- International examinations such as the West African Senior School Certificate Examination (WASSCE), developed for candidates in all the member countries as part of their educational reform programme, and conducted twice in a year; May/June and November/December of each year.
- Examination conducted in collaboration with other bodies.
- Examination conducted on behalf of other bodies.

Over the years, WAEC has contributed to the curriculum development in its member-countries through its activities in testing procedures, fixing standard, examination administration, research and evaluation studies and syllabus development and review. Through its examinations, which influenced what is taught in schools and the component of summative evaluation of school curricula it handles; it makes an invaluable input in to the curriculum development.

2. JOINT ADMISSIONS AND MATRICULATION BOARD (JAMB).

The Joint Admissions and Matriculation Board (JAMB) was established in 1977 and given effect by the Decree No. 2 of 1978. This followed the acceptance, in 1976 of the recommendations of the committee set up by the federal

government to, among others; consider the possibility of setting up a joint matriculation board. This was prompted by the recommendations to government of a panel set up by the Committee Vice Chancellors of Nigerian Universities in 1974, to examine the system of admission in order to avoid multiple applications and offers of admission to candidates seeking admissions in to the Nigerian universities. The functions of the Board include:

(a) Conducting matriculation and entrance examinations for entry in to existing universities, polytechnics, and colleges of education.

(b) Placing suitably and academically qualified candidates in the universities, polytechnics and colleges of education, taking in to consideration such variables as available vacancies, candidates preferences of course of study and available courses in each institutions.

(c) Collecting and disseminating information on all matters relating to admissions in to tertiary institutions.

JAMB conducted its first examination for the universities in April 1978, for about 96,884 candidates. For the polytechnics and the colleges of education, the board conducted its first examination in 1990. By 1998, the number of candidates taking the universities matriculation examination (UME) rose to 419,807 and in 2002, over 1,000,000 candidates sat for UME. The figures for the polytechnics and the colleges of education matriculation examination (PCE), which are much lower, are 18,835 for 1990 and 194,889 for 1997. As at 1999, the board had conducted 23 UMEs and 11 PCEs and was catering for 43 degree awarding universities and 117 polytechnics and colleges of education. (ESA, 2003).

3. NATIONAL BOARD FOR EDUCATIONAL MEASUREMENT (NBEM) / NATIONAL EXAMINATIONS COUNCIL (NECO)

The National Board for Educational Measurement (NBEM) was established by Decree No. 69 of 1993. Following the recommendations of the Justice Sogbetun Judicial Tribunal of Inquiry of 1977, the federal government set up the Angulu panel in 1982 to consider the feasibility of establishing regional examination boards in Nigeria as a way of decongesting the work load of WAEC. After the Angulu panel, other panels were set by the federal government to look in to the same issue and finally, the government approved

The Task Force recommendations of 1991. Four examining bodies to handle specific examinations are:

(a) WAEC to continue to conduct Senior School Certificate Examination in May/June and November/December.

(b) National Teachers Institute (NTI) to conduct the Teachers Grade II Certificate Examination

(c) National Board for Education Measurement (NBEM) to conduct the National Common Entrance Examination, Junior School Certificate Examination (JSCE) for unity schools and other federal institutions, and aptitude tests for organizations that require them

(d) The National Business and Technical Examinations Board (NABTEB) to conduct business and technical examinations.

In 1999, following the recommendations of the Etsu Nupe Panel on Higher Education and the vision 2010 Committee, an indigenous examination body, to be known as the National Examination Council (NECO) was established. The rationale behind it was so that NECO can be parallel with WAEC and to be solely responsible for the conduct of May/June SSCE, while WAEC will continue with the November/December GCE for private candidates. NECO conducted their first examination in May/June 2000.

4. NATIONAL BUSINESS AND TECHNICAL EXAMINATIONS BOARD (NABTEB)

Like in the NBEM and NECO, the National Business and Technical Examinations Board (NABTEB) were established by Decree No. 70 of August, 1993.

The decree establishing NABTEB empowers it to conduct all business and technical examinations and tests and to issue results and certificates to qualified candidates. NABTEB took over all technical and business examinations including the City and Guild of London, and the Royal Society of Arts (RSA) examinations from WAEC in 1995. It has developed its examination syllabuses for various trade and business and technical vocations, and accredited technical colleges for its examinations.

The board conducts the National Business Certificate (NBC), the Advanced National Business Certificate (ANBC), the National Technical Certificate (NTC) and the Advanced National Technical Certificate (ANTC) Examinations for four business courses and 30 technical courses. Over the years, the number of

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candidates taking this examination has been on the increase as more people become aware of the opportunity provided by the various examinations. There is no doubt that the board has boosted the importance and role of business and technical education in the national development.

3.4.4. Trade Unionism and Educational Development

Educational trade unions have played significant roles in the development of education and the welfare of the educational institutions in Nigeria. The quality of welfare given to the staff of educational institutions, determines their general out put in the business of knowledge impartation. An education system which realizes this fact and put in place a good control system for the welfare of its educational staff is also geared towards the improvement of quality of education. The most outstanding educational trade unions are:

(i)   NIGERIAN UNION OF TEACHERS (NUT)

The Nigerian Union of Teachers (NUT) was established in 1931 as an organization to carter for the interest of teachers in terms of their welfare and professional development. The union has its branches in all over the states of the federation and has successfully operated the check-off system for the payments of its member's annual dues; as a result it boosted its revenue and enabled it to establish branch offices at the state level.

Critics of the union felt that its activities were only centered on service conditions to the detriment of professional development of its members. However, a careful analysis of the union's activities over the years revealed a very divergent opinion of its members, non-members and officials on its roles in curriculum organization, curriculum implementation and curriculum initiation, dissemination strategies, and monitoring. The union's contributions to educational improvement, teacher development programmes, and educational policies are significant enough meriting. As a matter of fact, the union has done many things in the area of professional development of its members. A few instances may suffice:

- In collaboration with the Canadian Union of Teachers, it started to organize annual national workshops on science and technology about 1984.
- It organizes annual conferences for its members at which carefully selected themes are exhaustively discussed, both professionally and academically, and proceedings published for the dissemination of vital information.
- It organizes seminars and workshops for both its members and staff to develop their competence and skills.
- It collaborates with national and inter-national organizations for exchange of ideas through attendance of their conferences and training programmes as well as involvement in exchange of personnel.
- Through its contribution at the Joint Consultative Committee on Education (JCCE) and the National Council on Education (NCE), it spearheaded the demand for the professionalization of teaching in Nigeria.

It was on record that the NUT's memorandum to JCCE in 1988, which made a strong case for the professionalization of teaching in Nigeria and suggested provision for the Teacher's Registration Council and Nigerian Teacher's Service Manual, formed the basis of JCCE's recommendations to, and approval by, the National Council on Education (NCE) on professionalization of teaching and the establishment of the Teacher's Registration Council in 1999.

In a recent move by the union to give effect to professionalization of teaching in Nigeria, having waited so long for the Teachers Registration Council to act, it took the initiative to charter teachers in to professional categories as it is done in other professions. This was followed by the call on teachers to formally apply to the union for registration as professionals in appropriate categories. The response was impressive, showing that the teachers yearn for this development. The Federal Ministry of Education has frowned at the exercise and declared it redundant in view of the existence of the Teacher's Registration Council, whose function is to register teachers.

(ii) ACADEMIC STAFF UNION OF UNIVERSITIES (ASUU)

The origin of ASUU is in the Association of University Teachers (AUT) founded in 1965 by the academic staff of the universities of Ibadan, Lagos and Nigeria,

and Ahmadu Bello University, Zaria, as a purely professional organization. Following humiliating experiences, the AUT was faced-off with the military regime of General Gowon in 1973. After the face-off, the association saw wisdom in transforming from purely professional consultative body to a national trade union, affiliated to the national Trade Union Congress. This transformation helped in providing legal backing and an operational muscle to its operations (ESA, 2002).

Thus the Academic Staff Union of Universities (ASUU), with its national headquarters at the University of Ibadan, was established in 1975. Its main function has been to carter for the welfare of its members (academic staff of the universities) through negotiation with university authorities and the governments of the federation, particularly the federal government. It has branches in all Nigerian universities, with all university lecturer's and research fellows as members.

It is more remembered as a militant group because of its readiness to declare an industrial dispute if the authorities fail to yield to its demands, however, it has also made valuable contributions through its comments on national issues or by taking a stand on matters of importance to the overall development of the country.

The union has often been berated because of its frequent strike actions, which usually results in to the bastardization of the university calendar system. All the same, one needs to point to the causes of such strikes; they tend to be prompted by the same recurrent issues, which have often pitted the union against the government. For instance, failures on the part of the government to honor an agreement and the determination of the union to get a fair deal for its members by seeing an improvement in their condition of service have always been the trigger for such strikes. Some of these issues for negotiations are not for the benefit of members alone, but in the interest of the whole university system. For example, the most recent resolutions contains issues that has to do with the procedures for the negotiation and the agreements reached on funding of universities, condition of service (including salaries and allowances e.t.c of staff), university autonomy, and academic freedom.

Despite all criticism, ASUU continues to have a major role to play in the university system and the nation at large. Among these are:

- The organization of annual lectures to stimulate scholarship.

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- Conferences on national issues that makes contribution towards national development, e.g. "The State of Nigerian Economy" (1984) dealing with such issues as economic development and planning, energy and mineral resources, industrialization, agriculture, education and social development.
- Occasional publications to educate the public and advise appropriate bodies e.g. " The State of the Nation" (2000), containing two major contribution on impact of debt on Nigeria's development, and poverty reduction; "The scholar"(2002), containing articles on diverse issues including ASUU position paper on Nigeria University System Innovation Project: the World Bank and Nigeria.
- A Journal containing articles on diverse issues and subjects with contributions from members and non-members alike.

The critics of ASUU notwithstanding have some good comments about its impact in the university education. While one commentator sees ASUU as the only distinguished body that has consistently demonstrated transparent and sincere guardianship to Nigerian students on the campuses, another also sees it as a very desirable body that needs to be revamped.

(iii)   NON- ACADEMIC STAFF UNION OF EDUCATIONAL AND ASSOCIATED INSTITUTIONS (NASU)

The Non-academic Staff Union of Educational and Associated Institutions (NASU) is the counterpart of ASUU in the University for All Non-academic Staff. Like ASUU, it has its national headquarters at the University of Ibadan. Its primary concern is the welfare of its members in six different groups of institutions including tertiary institutions (universities, polytechnics, and colleges of education), teaching hospitals, and research institutes (where most of the educational parastatals belong). It is dominated by junior staff of these institutions since there is another union specifically for the senior non-academic staff, particularly in the tertiary institutions. NASU has existed for long and it was judged as one of the most stable union on university campuses. The union also fights for the funding of universities, conditions of service (including salaries, allowances, fringe benefits etc) and university autonomy, and other matters (ESA, 2002).

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(iv)   SENIOR STAFF ASSOCIATION OF NIGERIAN UNIVERSITIES (SSANU)

The Senior Staff Association of Nigerian Universities (SSANU) is the senior segment of the non-academic staff, except that NASU contains both junior and senior staff while SSNU contains only senior staff. It also has its headquarters in Ibadan and being made up mostly of administrative staff.
SSANU, like NASU, has branches in other tertiary institutions and related educational institutions. It is effective, less militant, stable and well organized. Unlike ASUU, it appears to concentrate mainly and entirely on welfare matters for its members (ESA, 2002).

(v)   COLLEGES OF EDUCATION ACADEMIC STAFF UNION (COEASU)

The Colleges of Education Academic Staff Union (COEASU) is the equivalent of ASUU in the colleges of education. The name has to reflect the institutions involved, since these are not universities and in any case, ASUU struggles became necessary and important. COEASU has had a limited history of existence and a low incidence of strikes.

The main focus of the union is that of the welfare of its members, being the academic staff of the colleges of education. Among other activities of the union are the negotiations with the government on issues of funding of colleges of education, staff salary and, autonomy and academic freedom in the colleges of education (ESA, 2002).

(vi)   ACADEMIC STAFF UNION OF POLYTECHNICS (ASUP)

The Academic Staff Union of Polytechnics (ASUP) is the direct counterpart of ASUU in polytechnics. Again, the name has to reflect the institutions involved, and since these are not universities and in any case, ASSU's struggles are entirely for staff of universities, an identity in name and aspiration becomes necessary and important. ASUP has a limited history of existence and a few cases of strikes.

ASUP uses similar strategies as ASUU in negotiating with polytechnic authorities and government on issues relating to polytechnic funding, salaries of members and other benefits, academic freedom and others, (ESA, 2002).

3.5 Current State, Effects and New Reforms in the Education System

A frequently mentioned objective of education by the then president of Nigeria, His Excellency, President Olusegun Obasanjo is that;

"Education is for national development. Without a proper educational sector, there is no possibility of attaining our Millennium Development Goal (MDG) and Education for All (EFA) goals or fast tracking NEEDS". (FME, 2006).

It has also been purported by the mission statement of UNESCO at the 1998 World Conference that:

"The world has entered a phase in history of which change is an essential feature, but change that is radically different from that experienced in the past...The problems of higher educations and education in general are one of the great challenges confronting society in the approaches to the twenty-first century. Higher education, for its part, is faced with the challenge of preparing itself to fulfill its mission adequately in a world of transformation and to meet the needs and requirements of twenty-first century society, which will be a society of knowledge, information and education". (Oguniyi, 2005).

This implies that educational institutions around the world must make their programmes and curriculums more relevant to the need of their societies.

The Nigerian education system has witnesses a tremendous change and expansion between independence in 1960 and now (2009). However, the rate of decline in quality of education is a thing of great concern to Nigerians and the government. It is necessary to examine briefly the present system of education and its immediate past in order to understand and appreciate the nature, magnitude and effects of the crisis in the education system. We shall consider the present situation of educational crisis in the following levels of education:

- Early Childhood
- Basic Education
- Secondary Education
- Tertiary Education
- Adult/Non-formal Education
- Education for those with Special Needs

We shall be describing the situation in each of the above levels with special attention to the following issues:

- Policy
- Structure and governance
- Physical infrastructure
- Deployment of Technology
- Academic Achievement
- Monitoring and Inspection
- Quality of Curriculum
- Teacher Quality and Supply
- Funding
- Equity Issues

1. Early Childhood Education.

The present situation of the Early Childhood Education in Nigeria is such that lack a defined national policy. This implies that there is no national policy on early education. The structure and governance of the Early Childhood Education is largely driven by the private sector. The schools have become elitist in nature and they lack governmental regulation.

With regards physical infrastructure, the ones on ground are a bit manageable but not satisfactorily. According to the report of the presidential forum on education sector, which took place on October 28, 2006; At least 53,000 early childhood schools are required in addition to what is currently available to meet the need on ground. On the issue of deployment of technology, there is no available data gathering system for effective deployment of strategy. The parameters for measuring academic achievement at this level of education is yet undefined.

Due to lack of governmental regulation for this level of education, quality of curriculum is not standardized across the nation. Each state or even schools operate their curriculum as they deem fit. As a result even monitoring and inspection is very much inadequate and ineffective. The issue of teacher quality and supply is also a big problem, according to the same report on presidential forum for education sector; there are an inadequate number of qualified and adequately trained teachers at this level. No policy framework for equity of access and funding of this level of education is totally private sector based (Presidential Forum on Education, 2006).

2. Basic Education.

The current policy on basic education is that; it must be largely managed by the local government areas, supported by the state and federal government. The structure and governance of the basic education level is also largely public sector driven. There are presently 50,871 public pre-basic/basic education schools versus 9,317 private pre-basic/basic education schools (Presdential Forum on Education, 2006). Although there is a good supply of physical infrastructure at this level, yet more is needed to meet the demand of the nation at this level. According to the report on the presidential forum on educational sector, there are currently 254, 319 class rooms available, yet 251,030 more classrooms are needed immediately. Only 50.95% of the available classrooms are considered to be in "good" condition while 29.65% of primary schools have access to basic amenities like water and light. There is lack of adequate deployment of technology at this level of education across the nation.

The academic achievement at this level is very low and is inconsistent with Basic Education policy requirements, especially in the area of numeracy and literacy. Monitoring and inspection at this level is inadequate and ineffective, as a result there is lack of standards and quality assurance. The quality of the curriculum at this level has been recently updated and so was rated high, although the impact is yet to be seen. Teacher supply and quality is also low; a number of the available teachers are either not qualified or they are still grade two teachers, who are yet to go back to the university to review and redevelop themselves. There are currently 575,068 teachers at this level of education and 297,400 more are required (Presidential Forum on Education, 2006).

Funding is low and the quality/level of public sector investment is generally an issue that needs transparency. The funding is largely from the state government with a special intervention from the federal government [under the Universal Basic Education Commission (UBEC) programme] as well as private sector investments. The issue of equity of access at this level is medium, with ratio of male to female across the federation standing at 1.28:1. The ratio of male to female across the Gender Enrollment Programme (GEP) states is 1.57:1, while the enrollments federation versus Gender Enrollment Programme GEP states is 2.56:1 for males and 3.27:1 for females (Presidential Forum on Education, 2006).

3. Secondary Education.

According to the present policy on education, the state governments are constitutionally responsible for secondary education, while the federal government through a special intervention establishes and is responsible for the unity secondary schools. The structure and governance of the secondary schools is also public driven, with about 6,700 public owned secondary schools out of which 102 are unity secondary schools. The private owned ones are 3, 400 making a total of 11,000 secondary schools in Nigeria.

Physical structures like classrooms are inadequate compared to the number of students in these schools. There are 98,078 classrooms currently available, out of which only 50.25% are considered to be in "Good" condition and about 32,677 more classrooms are required to meet the carrying capacity of the secondary schools. Only 41.94% of secondary schools have access to basic amenities like good water and electricity. Some of the secondary schools located in the rural areas have no classrooms, water nor electricity available. There is also lack of deployment of technology at this level across the nation.

The academic achievement at this level is also very poor. For example, the percentage of students who made five credits including English and Mathematics in the Secondary School Certificate Examination (SSCE) conducted by the West African Examination Council (WAEC) between the years 2000-2004 across the federation is 23.37%. In 2005, only 23.1% of the students that took Joint Admission Matriculation Board Examination (JAMB) passed. (Presidential forum on education sector, October 28, 2006).

The Federal Inspectorate Service (FIS) and the State Inspectorate Service (SIS) are responsible for the monitoring and inspection of secondary schools to

ensure that quality of education and standards are maintained. The recent comprehensive national inspection covered only 434 schools, which does not adequately represent the nation.

The quality of curriculum is low and this has resulted in the present declining of academic standards in the higher institutions of learning. For this reasons a new secondary school curriculum is currently under development. Also the quality of teachers and the supply of these teachers are also inadequate. Secondary school education seems to be the connecting rod between the lowest level of education and the higher level of education, therefore much attention is suppose to be given to this level of education in Nigeria, if truly we want to achieve national development.

Funding at this level of education is currently medium. Funding is largely from the state governments and the private sector investments. Federal government is however responsible for funding the 102 unity schools. Deployment of technology has not been very effective and transparency is much needed. Equity of access is also medium, male- female gender are well represented at this level of education.

4. Tertiary Education.

According to the present national policy on education, the federal government is responsible for the regulation and share provision of tertiary education. The state government and the private have also been given licensed to operate state and private tertiary education institutions in Nigeria. There are 26 federal owned degrees awarding tertiary institutions, one Open University, 28 states owned and 24 private owned; making a total of 78 degree awarding tertiary institutions altogether. There are also 126 federal and state owned polytechnics and colleges of education. The carrying capacity of Nigerian universities today is only 148,323, while the demand for admission in to tertiary institutions is at least 1.2 million annually. (Presidential forum on education sector, October 28, 2006).

Now, the Nigerian University System (NUS) conducts accreditation of courses annually to ensure that provision of the minimum academic standards (MAS) are attained, maintained and enhanced. In addition, it is also done to assure employers of labor and to certify to the international community as well as Nigerian community that the Nigerian graduates of all academic programmes

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have attained an acceptable level of competence in their areas of specialization and are therefore adequate for employment and further studies.

Programmes are evaluated and scored based on the following criteria

- Staffing   32 points
- Academic Content   23 points
- Physical Facilities   25 points
- Library   12 points
- Funding   5 points
- Employer's rating   3 points
TOTAL POINTS   100 points

A total score of 70% and above in each core area results in a full accreditation status, while a score of 60% and more but less than 70% in each core area results in interim or partial accreditation. A case of denied accreditation arises when the score is less than 60% in all the core areas.

According to a publication of the office of the executive secretary, Federal Ministry of education (21st April, 2008, Vol.3 No. 16); the result of the most recent universities course accreditation exercise in 2007 revealed that there has been a significant increase in the number of programmes with full accreditation status in the NUS over the years. In November 2006, only 54.45% of programmes evaluated, earned full accreditation compared to 68.7% in November 2007 (FME, 2008).

The analysis of the 2007 accreditation exercise revealed that 872 programmes from 53 universities consisting of 23 Federal, 19 State and 11 private Universities were evaluated. Out of which 74.9% of programmes evaluated in the Federal universities earned full accreditation status compared to 69.7 and 49.6% of programmes in the State and the Private universities respectively. In the denied accreditation status category, Private Universities had relatively more denied programmes (6.7%) than their Federal (2.5%) and State (2.1%) counterparts. However, on a system-wide basis, there has been a slight decline in the number of academic programmes earning denied accreditation status (FME, 2008).

A trend analysis of the performance of academic programmes in the Nigerian University System (NUS) indicates a progressive improvement in the quality of

the programmes over the years. For instance, the percentage of programmes with full accreditation status increased from 11.45% in 1999/2000 to 44.8% in 2005/2006 to 68.7% in 2007/2008; while the percentage of denied status declined from 17% to 6.7% and to 3% in the same period (FME, 2008).

Physical infrastructure is inadequate and the available ones are mostly at a crumbling state. Misappropriation and mishandling of physical infrastructure is the order of the day in the tertiary institutions. There is generally lack of adequate deployment of technology across board in the tertiary institutions. There is low academic achievement at this level as is reflected in underemployment and unemployment and issues of poor relevance to the demand of the markets. There have been significant regulatory failures in the area of monitoring and inspection in tertiary education. Cultism, Examination malpractice, examination administration and release of results, scholarship and student loan opportunities, poor research opportunities, student abuse, system abuse and poor student management are the issues of great concern at this level of education.

The quality of curriculum is not focused on modern imperatives of the Nigeria nation-state, particularly entrepreneurship and career development. Faculty quality and supply is at medium level, with the ratio of teaching to non-teaching personnel in tertiary institutions (universities in particular) being 1:3. This implies that there are more non-teaching personnel compared to the teaching personnel in most of the tertiary institutions. Funding is moderately delivered by the federal, state and the private sector respectively. Quality of investment is low and capital investment is inadequate revealing lopsidedness in favor of non-academic expenditure. For example, for every one naira spent on capital investment, eleven naira is spent on recurrent investment. (Presidential Forum on Education sector, 2006).

The issue of equity of access is moderate since each state has at least three or four of these tertiary institutions.

5. Adult/Non-formal Education.

The federal government is largely responsible for adult/non-formal education in Nigeria. The structure and governance of this level of education is not well defined and physical infrastructure is inadequate. The parameters for academic achievement are yet to be defined for this level of education and there is no adequate deployment of technology across the board. The

monitoring and inspection at this level is inadequate and ineffective while the quality of curriculum is low and not well defined Teacher quality and supply, funding and equity of access are issues still not yet dealt with at this level of education.

6. Special Education

The policy on special education spelled out clearly that it is largely the responsibility of the federal government to take care of the special needs education. This level of education is a level of education where people like the handicapped, the deaf, the dumb and the blind are being educated.

Physical infrastructure for this level of education is very limited; deployment of technology across the board is very low with undefined parameters for academic achievements. Monitoring and inspection is inadequate and ineffective. Although there is few trained staff available, they could not impact knowledge because of lack of infrastructures. Low funding and low equity of access characterize this level of education in Nigeria.

3.5.1 The Effects of the Crisis

As a result of the above mentioned present situation of the education system of Nigeria, the education sector is viewed by many as being in a dysfunctional state in the last two decades. The effect of the crisis is best described by what is called the "Funnel Syndrome" represented by figure 3.1 below:

Figure 3.1 The Funnel Syndrome
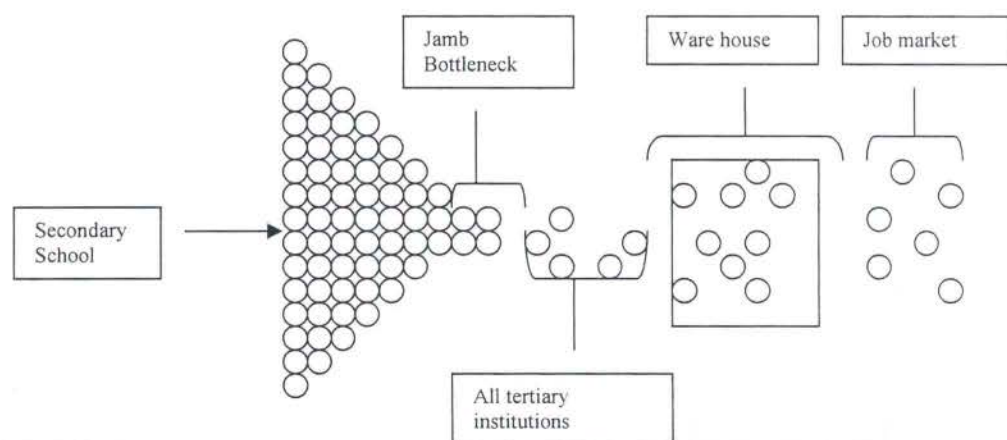
There are many graduates from the secondary schools, but they are un-qualified to be admitted in to the higher institutions as a result of poor performance in both the Secondary School Certificate Examination (SSCE) and the Joint Admission Matriculation Board Examination (JAMB). See table 3.4 below for more details of the issue of JAMB admissions.

Table 3.4 Joint Admission Matriculation Boards (JAMB) Examination Statistics: 1999-2004.

Year	Number of applicants	Number Admitted	Number Rejected	Success rate (%)	Failure rate (%)	Ratio
1999	418,928	64,358	354,570	15.4	84.6	1:6
2000	416,691	45,766	370,925	11	89	1:9
2001	749,727	90,769	658,958	12.1	87.9	1:8
2002	994,381	51,845	942,536	5.2	94.8	1:19
2003	1,046,103	104,991	541,112	10	90	1:10
2004	841,878	74,361	767,516	8.8	91.2	1:11
Total	4,467,708	432,090	4,035,618	9.7	90.3	1:10

Therefore fewer percentages of the students gain admission in to and graduate from the tertiary institutions and very few are also absorbed in to the labor market. In essence, the nation produces less and less of the leaders of tomorrow: the managers, the entrepreneurial class, the teachers, the doctors, the policy makers, the law enforcement officers, the professionals, e.t.c

In relation to table 3.4 above, one may be forced to ask the question "where are the rejected candidates?" Of course they would have formed a demographic of those in blissful ignorance, (i.e. out of school population who should have been in school at every level). The nation is in danger of producing miscreants, the disaffected and rejected, the discredited, the unlearned, the angry, and the wronged, agitated and hopeless youths. In fact, if nothing is done about this situation, Nigeria may have a significant population of highly trained, skilled and motivated hardened criminals in the near future.

Many assume that the problem of the education sector is all about funding, but the crisis is not all about funding (Presidential Forum on Education, 2006). Consider the following statistics on funding the education sector in table 3.5 and figure 3.2 below:

Table 3.5 Education Sector Budget (2000-2006)

Year	Education Sector Budget (in billions of naira).
2000	23.6
2001	56.84
2002	82.12
2003	78.95
2004	93.77
2005	120.03
2006	167.31
Total	622.32

Figure 3.2 Education Sector Budget (2000-2006)
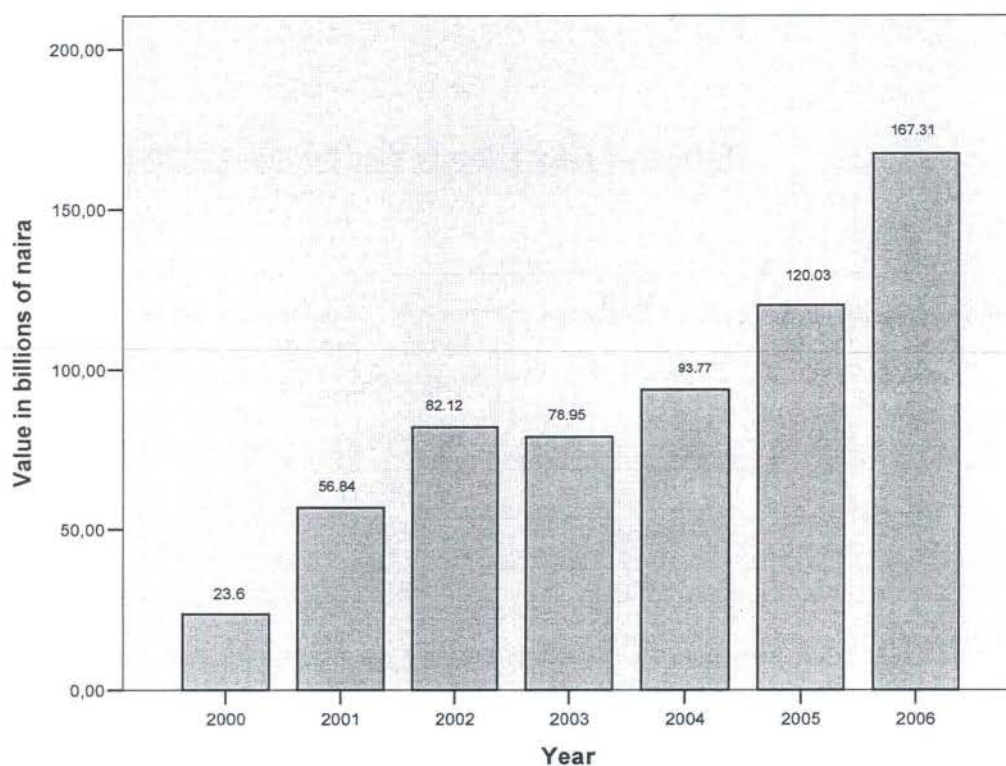
The total Budget for Education sector between 2000 and 2006 was 622.62 billion naira. Also, between 1999 and August 2006, the Education Trust Fund (ETF) allocated a total of 81.6 billion naira to universities, polytechnics and colleges of education. More so, Universal Basic Education Commission (UBEC) disbursed 15.7 billion naira to states between 2005 and July 2006. From the above statistics, it is clear that funding was increasing by an average of 23.95 billion naira annually. Now comparing the two statistics, i.e. the JAMB statistics and the education sector budget statistics, it was clearly revealed that while funding is increasing, the performance within the sector was taking a downward slide. This was also demonstrated by the report that 76.63% of students who took the West African Examination Council (WAEC) Examinations between 2000 and 2004 failed. Even the Unity Secondary Schools (Schools directly funded by the federal government), only 15% of them managed to pass above the 40% score grade between 2000 and 2004. The remaining 85% of the students failed and 61% scored between 0% and 9%.

In addition the average success rate (5 credits and above, including mathematics and English) for Unity Secondary Schools for the National Examination Council (NECO) examination between 2000 and 2006 is 38%; also the first Unity Secondary School was ranked 54th in the NECO's ranking of the top 100 secondary schools in Nigeria in terms of performance for the same period. (Presidential Forum on Education Sector, 2006).

From the foregoing, it is clear that increased funding per se, has not translated in to improved performance. As funding went up, performance, especially in the secondary school level declined. This is not surprising, considering the fact that the attention of the government is focused more on oil and gas or solid minerals while the education sector is left to become more and more dysfunctional. But it will be good to know that Nigeria's development will not be saved by oil and gas or solid minerals; alone, but rather the application of the benefit stream arising from resource exploitation in the development of human capital. Education is therefore central to the accomplishment of the above, in other words, education is the substrate of all this and without education Nigeria will not attain global relevance, neither will we create a good society or an informed citizenry.

3.5.2 The New Reforms in Education in Nigeria

As a result of the dysfunction of the education sector, the federal government of Nigeria saw it as a national crisis and began to look for a way forward to reform and restructure the Federal ministry of education (FME) and the education system at large. The ministry's organogram and parastatals groups were then reorganized and the agenda for reforms were considered in the following areas;

1. **Transparency initiatives**

   For more transparency in education, the federal government initiated the following;

   (i)   Sector wide Asset Register (SAR) development, to monitor the activities of the education sector.

(ii)   Community Accountability and Transparency Innititives (CATI) for Universal Basic Education Commission (UBEC).

(iii) Publication by National Universities Commission (NUC) of funding for each university

(iv)   Deployment of Management Information Systems (MIS)

(v)   Monitoring mechanism by tracking the amount of Federal Government Universal Basic Education (UBE) intervention funds, against the provision of actual facilities

2. Education Finance Initiatives

In the area of education finance, the following reforms are made:

(i)   Re-alignment of personnel cost versus capital cost in the education sector as a first step towards volume increase in funding of education.

(ii)   Continuation of work on the 10-year education sector plan with a simulation model for cost projection towards meeting the Millennium Development Goal (MDG) and Education For All (EFA).

(iii) More co-ordination of federal, state and local government spending on education. Developing a frame work for more collaboration with states on education financing particularly with regards to tracking and reporting mechanisms for nation wide spending on education.

(iv)   Use of the Public Private Partnership (PPP) model at all relevant levels of education management and funding.

(v)   Regulation of collection of issues of Education Tax Fund (ETF) with Federal Inland Revenue Services (FIRS).

(vi)   A sustainable funding strategy for School Feeding Programme (SFP) is being developed.

(vii) Bring Universal Basic Education Commission (UBEC) intervention resources under Education Trust Fund (ETF) disbursement mechanism.

3. Physical Infrastructure Initiatives

The new reforms in the area of physical infrastructure are as follows;

(i)   Physical infrastructure condition survey will take place with NSE et al.

(ii)   Project Cost Analysis for upgrading tertiary institutions to international standard has commenced.

(iii)   Mounting campaign for infrastructural upgrade provision by states.

4. Resolving Basic and Secondary Education Challenges

In the area of universal basic education (UBE) and Secondary education, the following reforms are made;

(i)   Introduction of nation wide campaign similar to health immunization campaign.

(ii)   Publishing of Frequently Asked Question (FAQs) on the Universal Basic Education programme (UBE).

(iii)   Formation of Gender Enrolment Programme (GEP) for girl (boy) education in some particular states.

(iv)   Dissemination of the new Universal Basic Education (UBE) curriculum.

(v)   Implementation of Education Quality Assurance Program through effective inspectorate operations, which they called Operation Reach All Secondary Schools (ORASS).

(vi)   Consolidation of Federal Inspectorate Service (FIS) and Universal Basic Education Commission (UBEC) in to an independent regulatory agency for Basic and Secondary Education.

(vii)   Facilitation of the easing of constraints to private providers of education.

(viii)   Proposal for a Public Private Partnership (PPP) model for restoring efficient management of unity schools i.e. the Federal Government Colleges (FGCs) for improved academic achievements and for the return of Federal Ministry of Education to nationwide policy regulatory competence.

(ix)   Commencement of the development of new standardized continuous testing Instruments for nation wide application for Basic Education.

(x)   Establishment of standing advisory group of pre-eminent educationists and other distinguished Nigerians for a closer interaction between Federal Ministry of Education and the society.

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(xi)   Generation of database of exam offenders: Students, teachers, principals, invigilators, supervisors, parents, centers and schools for public access

(xii)   Collaboration with EFCC to prosecute examination offenders.

5. Tackling teacher supply and quality issues.

The following are the new reforms in the area of teacher quality and supply;

(i)   Development of a comprehensive strategy for teacher development (training, recruitment and retention).

(ii)   Implementation of annual in-service training for teachers (e.g 145,000 teachers are on in-service training as at September, 2006.

(iii)   Federal Teacher Service Corps (FTSC) is recruiting 40,000 National Certificate Education (NCE) holders on Federal Government of Nigeria's (FGN) guaranteed salary for 2 years, commencing from November, 2006.

(iv)   Nationwide upgrade of grade II teachers to National Certificate of education (NCE) holders on cost sharing basis by federal government, state government and beneficiaries. (187,000 grade II teachers are involved as at September 2006).

(v)   Housing For all Teachers (HAT) initiative by Federal Ministry of Education (FME) and FMBN piloting with the Federal Capital Territory (FCT).

(vi)   Institution of Presidential Teachers Excellence Award (PTEA) to the best teachers of the year, with effect from 2007.

(vii)   National Certificate of Education (NCE) holders to mandate the provision of Information and communication Technology infrastructure in all secondary schools and deepen data collection infrastructure.(NEMIS)

6. Resolving Issues in Tertiary Education.

Some of the reforms made in the area of tertiary education are;

(i)   Establishment of Innovation Enterprise Institutions (IEI), such as the Information and Communication Technology (ICT) Institute, the school of oil and gas technology e.t.c. 50 of

such institutions enrolling 300,000 students annually is needed.

(ii) Establishment of Tracking Assets for Progress (ed.TAP) scheme for graduate retooling and curriculum realignment to marketplace imperatives, substantially address the problem of graduate unemployment, promote entrepreneurial development and skill acquisition. For example, the pilot scheme for 100 participants took place early October 2006. (www.edtap.org).

(iii) Proposal for consolidation of tertiary institutions by converting and upgrading Polytechnics and Colleges of Education in to campuses of proximate universities to address carrying capacity issues.(Additional 500,000 admission spaces were estimated).

(iv) A public presentation of the 2004 states and university visitation panel reports, to enable the public understand the state of education in Nigeria.

(v) A special computer initiative for education in Nigeria has been designed for competitive economy. (science)

(vi) Leveraging Information and Communication Technology to reconnect Nigerian scholars now in public and private sectors to university faculties to deepen teaching quality.

(vii) National University Commission (NUC) and Education Trust Fund collaboration to provide competitive research grant opportunities to university faculties.

(viii) Restructuring of Federal Scholarship Board by allowing fund management and private sector administration model.

(ix) Establishment of student call centers in all tertiary institutions: a special progaramme to address the cultism and student abuse linked to the Nigerian police network special division.

(x) Establishment of a centralized, banking sector funded identity system for all students, lecturers and staff of tertiary institutions. "The WE CAN" identity/debit card, for ease of tracking.

(xi) Introduction of examination management technology to eliminate examination malpractice in West African Examination Council (WAEC), National Examination Council

(NECO), Joint Admission Matriculation Board(JAMB), National Business and Technical Examinations Board (NABTEB), e.t.c Examinations and improve integrity of the examination process.

(xii)   Establishment of career centers in the tertiary institutions.

(xiii) Review of course accreditation process of the National Board for Technical Education (NBTE), National Commission for Colleges of Education (NCCE) and National Universities Commission (NUC).

(xiv)   Reintroduction of Bill for university autonomy.

(xv)   Reconstitution of governing councils of tertiary institutions along new selection parameters.

(xvi)   Standardization of post University Matriculation Examination (UME) screening, structure and content.

(xvii) Scrap or clean up the issues of graduation to National Youth Service Corps (NYSC), Law Schools and Medical School.

7. Issues of Campaign

Some campaign initiatives that are focused on improving the quality of education in Nigeria have also been developed and have been incorporated in to issues for reform. Some of the issues for campaign are;

(i)   Put in place campaign strategy on work ethics, especially those connected to education.

(ii)   Put in place effort/hard work campaigns

(iii)   The "We Can" campaign, that is to say a campaign that will awaken every one involved in the issues of education to stand and declare with practical efforts to making a change for good in the education system in Nigeria.

(iv)   Put in place the "Read Campaign", that also means campaigning and creating the awareness for the objectives and importance of acquiring knowledge in this contemporary period of increased knowledge. Some of the campaign points in this area are;

(a) Read to advance

(b) Read to be educated

(c) Read to develop

(v)   Campaigning to create an intelligent society

(vi)   Campaigning for teacher celebration and restoration of teacher's glory.

(vii)   Campaigning for hard work and effort ethics

(viii)   Campaigning for improvement in Girl education using role models

(ix)   Literacy campaigns and incentives.

(x)   Campaigning for community Adopt-a-school programs.e.g each community should become stake holders and adopt a school so as to have a close monitoring for quality of education rendered.

8. Other Initiatives for reform

Other areas considered for the reforms are:

(i)   Revamping the Federal Ministry of Education (FME) website and harmonizing brand standards for parastatals

(ii)   Regularly conducting education opinion polls, to sample opinions of the public about the quality of education in Nigeria.

(iii)   Creation of Presidential forum on education, where issues and policies on education will be publicly discussed, to create more awareness on the issues of education to the general public.

(iv)   Consideration of new and amended legislation on education.

(v)   Creation of new national strategy on mass literacy

(vi)   Creation of new national strategy for Special Needs Education (education for the blind, the handicapped, the deaf and the dumb).

Over 50% of these initiatives have commenced and are going on right now, and to deliver on the Millennium Development Goal (MDG) and Education For All (EFA) mission, the whole process will take a period of time. It was estimated that an annual funding of $US 4 billion per annum is needed for a period 2006-2015. (Presidential Forum on Education Sector, 2006).

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CHAPTER FOUR
REVIEW OF RELATED EMPIRICAL STUDIES AND TARGET/ RESEARCH QUESTIONS

4.1 Introduction

The past decade has seen ever – mounting pressure for universities to demonstrate the quality of their teaching, both internally and externally. As a result many countries now have explicit national university teaching quality assurance frameworks and many universities have their own internal teaching quality assurance processes. At the heart of these national and institutional teaching quality assurance processes are surveys that gather data from students on the quality of their teaching and learning experiences.

Where these sorts of survey have been used for national quality assurance exercises they have, not surprisingly, attracted their share of criticism and debate. In some cases the surveys are perceived to be measures of client satisfaction and as such are often treated with some skepticism by academic communities who rightly argue that there is more to a quality teaching and learning experiences than happy customers. However, the perception of such surveys as satisfaction surveys suggests a lack of awareness of the underlying research in to student learning on which they are based. There is considerable variation in the theoretical models of learning that underpin different national and institutional student evaluation of teaching surveys (Prosser and Barrie, 2003; Richardson, 2005).

For instance, the National Survey of Student Engagement (NSSE) which is widely used in the United States of America is based on the model of learning which suggests that it is the way students participate in higher education that determines the quality of learning that results (Kuh, 2001). The Course Experience Questionnaire (CEQ) which is widely used in Australia and the United Kingdom is based on a model of Learning that proposes that it is the ways student experience particular aspects of teaching that influences their approach to learning and the quality of learning that results (Ramsden, 1991). The CEQ survey therefore probes dimensions of the student experience that has been shown to correlate strongly with particular approaches to learning, which in turn are known to be associated with quality learning outcomes (for a discussion of this, see Prosser and Trigwell, 1999).

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In this chapter therefore, section 4.1 sets in an introduction to the chapter, section 4.2 talks about the use of student evaluation of teaching and learning in the Nigerian higher institutions, section 4.3 reviews some related empirical studies In the area of student evaluation of teaching and learning and section 4.4 links some of the empirical studies to the present studies, keeping in mind the model presented in this research and section 4.5 brings in the target and research question for the present study.

4.2 Student Evaluation of Teaching and Learning in Nigerian Higher Institutions

Student evaluation of teaching and learning is not a common practice when it comes to talking about quality assessment and evaluation in Nigerian higher institutions. Of all the volumes of papers and journals we have researched that has to do with quality of teaching and learning, very few of them relied on the student evaluation or are based on student's perception either at the national level or at the institutional level or both in Nigeria.

This reveals that student evaluations, which has been a common practice in higher institutions in most of the developed countries of the world (e.g. Australia, United Kingdom, and United States of America), is indeed a new area to be explored in the studies of quality of higher education in Nigeria. Most of the few studies and publications about quality of education in Nigeria are generally based on teacher's view, management's view or employer's view (Oni, 2000) and Most of these evaluations are policy driven, finance driven, accessibility and equity driven and not in the area of quality of teaching and learning . Even when such studies address issues of quality of teaching and learning, very few do so from the student's point of view. For some of the few studies that considered quality of teaching and learning from the student's point of view, see Watkins and Akande, (1992).

In their studies, Watkins and Akande tests the applicability of two American instruments - the Student's Evaluation of Educational Quality (SEEQ) consisting of six factors (learning/value, group interaction, individual rapport, examinations/grading, workload/difficulty, and organization/clarity) developed by Marsh, (1981a) and endeavor instructional rating form consisting of seven factors (student accomplishments, class discussions, personal attention, grading, workload, presentation clarity and organization/planning) devised by Frey, (1978). They were all used to assess tertiary student's evaluation of teaching effectiveness with 158 undergraduate students of Obafemi Awolowo University in Ile-Ife Nigeria.

Their findings support the reliability of the instrument, but throws doubt on the factor structure of the instrument for use with Nigerian students.

In a nut shell, they concluded that teaching effectiveness can be measured in Nigeria and that evaluation instruments developed at American Universities may well be reliable in Nigeria, but the distinct components that underlie evaluations of teaching effectiveness at American Universities may not be separable in Nigeria.

At the institutional level, some of the higher institutions carry out student evaluation just for documentation purposes in order to gain scores during audit tours or during assessors visits for course accreditation purposes. The use of student evaluations of teaching and learning for quality enhancement is not a common practice in Nigeria.

Not surprisingly therefore, almost all the universities and other higher institutions in Nigeria are still struggling without any well known and and documented qualitative internal or external survey structure to gather data from either current students or graduates about their course experiences on a regular basis in order to inform the authorities concerned for improvements. Even the few ones that were done in the past, their recommendations were probably swept under the carpets and no feed back was made available to the students, management of the institutions and the government nor was there any adjustments made as a result of the recommendations of such studies or research. Everything went down the hills in most cases.

4.3 Review of some Related Empirical Studies on Student Evaluation of Teaching and Learning

Right from the mid seventies until the early nineties, many massive literatures on the use of student evaluations as they relate to teaching effectiveness were being reviewed. For example, Feldman's, (1976) schemed 19 categories of instructional effectiveness of which some, which includes stimulation of student interest, teacher sensitivity to class level and progress, clarity of course requirements, understandable explanations, respect for students, and encouraging independent thoughts were highly rated by students. Marsh, (1987) found out that five dimensions (workload, teacher's explanation, empathy, openness and quality of assessment) out of the nine dimensions of effective instruction in the universities are rated very important by the students. He also discovered that, irrespective of the lecturer's generous rating of themselves, there exist an agreement of rating of good teaching characteristics between lecturers and students. Discussions of the above literature attest to the use of student evaluation of instruction in comparison with other measures such as peer evaluations. Entwistle and Tait, (1990) on

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the other hand described factors including the provision of clear goals, appropriate workload and level of difficulty, assignments providing choice, quality of explanations, level of material and the pace at which it is presented, enthusiasm and empathy with student's needs.

The works of Ramsden and Entwistle, (1981), Ramsden et al., (1989), Entwistle and Tait, (1990) and Ramsden, (1991) discovered that performance indicators should be about the performance of units responsible for teaching programmes rather than about rating individual staff. Hence, collection of information or instruments about programmes of study and the units that teach these programmes should be designed to yield data at aggregate level. These studies showed aggregate-level associations between the quality of student learning and student's perceptions of teaching.

As a result, Ramsden and Entwistle, (1981) devised the course perception questionnaire (CPQ), designed to measure student's experiences in British higher education institutions, whose scales included (good teaching, clarity of explanation, level at which material pitched, enthusiasm, and help with study problems, openness to students, freedom in learning, clear goals and standards, and appropriate workload). It was found that, when academic departments were perceived to provide these characteristics, their students were more likely to learn effectively from courses run within them. In particular, it was found that students were more likely to attempt to structure and understand the content of the syllabus when they perceived the teaching to be clearly structured and helpful; they were more likely to adopt minimalist approaches narrowly focused on assessment (e.g. rote-learning for examinations) under conditions of high workload and restricted choice over methods and content learning.

Also interviews with students provided confirmations that the relation between teaching quality and student learning was indeed a functional one (Entwistle and Ramsden, 1983). Some of the results in the above studies reflected typical findings in school effectiveness and school environment studies. Factors such as encouraging choice and independence in learning, clear explanation at the student's level, work -centered environment, (with clear standards and structure), concern for and interest in students and appropriate assessment have all been found to be related to student achievement. Several studies confirmed the critical importance to effective learning of teaching methods which emphasizes student enterprise, student autonomy and cooperative endeavour.

There were evidences from the various studies above that, there exist real differences in teaching quality and that these variations can be measured. Concern for and availability to students; enthusiasm and interest of teachers;

clear organization and goals; feedback on learning; the encouragement of student independence and active learning; an appropriate workload and relevant assessment methods; the provision of a suitably challenging academic environment are the key factors defining "good teaching" in higher education on which students are validly able to comment on.

On the other hand, the Course experience Questionnaire (CEQ), was designed to measure differences between academic organizational units (such as departments and faculties) in these important aspects of teaching, there by permitting ordinal ranking of units in different institutions within comparable subject areas in terms of perceived teaching quality. Based on the Course Perception Questionnaire (CPO) (Ramsden and Entwistle, (1981), a subsequent School Experiences Questionnaire (SEQ) for grade 12 students (Ramsden et al., 1989), and Entwistle's Experiences of Studying in Higher Education Questionnaire (EESHEQ) Entwistle and Tait, (1990); Ramsden developed and tested the first version of the Course Experience Questionnaire (CEQ) made up of 80 items (grouped in to nine hypothesized dimensions) with a sample of 100 students from one Australian higher education institution in May, 1989. After the first trial, the 80 item instrument was reduced to 57 item instrument, which was further tested on a sample of 300 students from nine courses in two institutions. The result showed that differences between courses in terms of the mean values for all the scales were highly statistically significant.

The second version of the Course Experience Questionnaire (CEQ) comprising of 30 items commonly referred to as the CEQ30 which is categorized in to five scales (good teaching, clear goals, appropriate workload, appropriate assessment and emphasis on independence) was scored on a 5-point Likert-type scale from "definitely agree" to "definitely disagree". The questionnaire was administered to a sample of 3,372 final year undergraduate students spread across different disciplines and programmes in 13 Australian higher education institutions.

Also a supplemented data of 1,087 were collected from students supporting the review of the Accounting Discipline in Higher Education whose items were identical to the performance indicator in the trial questionnaire as part of its own student and graduate questionnaire. This data was used by the researchers because it was collected the same year and it has an additional item that measure general satisfaction with course. Result of the study shows that there existed a predicted affinity between student learning and perceptions of courses. Factor analysis of the scale totals indicated that the presence of one dimension relating heavy workload and inappropriate assessment to superficial, reproductive study methods; and another

dimension was linking good teaching and clear goals to approaches which aimed at understanding. It was also found out that a positive relation between the general satisfaction and perceptions of adequate teaching and assessment methods existed strongest for good teaching and weakest for appropriate workload. No marked differences were observed, between Australian higher education sectors. In contrast to the between –sector results, marked differences were observed between fields of study on all the CEQ scales. The results also showed some existence of significant variation among institutions within fields. While no one scale or subscale of the CEQ provided significant result for every field, all fields showed differences between institutions on at least one scale. In conclusion, Ramsden, (1991) stated that there is evidence from empirical investigations that the Course Experience Questionnaire (CEQ30) is a valid and useful instrument for describing important differences in the teaching performance of academic units. Two studies reported findings on the structure of the CEQ30.

Trigwell and Prosser, (1991) used the CEQ30 on a sample of 55 final year nursing students to investigate the relationship between student's perceptions of their learning environment, he found clear relationships between a perceived heavy workload and inappropriate assessment and the student's adoption of a surface approach to learning and another relationship between a perception of good teaching, clear goals, and independence in learning and the student's adoption of a deep approach to learning. Trigwell and Prosser, (1991) also employed the CEQ to evaluate explicitly problem based approach, and that under these circumstances the degree of perceived emphasis on student independence and choice was much less important as a determinant of the perceived overall teaching quality.

In his studies, Richardson, (1994), used the CEQ30 on a sample of 256 students taking 4 year thin - sandwich honours degree in variety of social science discipline where he asked his respondents to indicate their agreement or disagreement along a five-point scale with 30 statements as description of their course of study. These items fall under five scales identified in previous research as reflecting different dimensions of effective instruction within higher education: Good teaching (8) items, clear goals and standards (5) items, appropriate workload (5) items, appropriate assessment (6) items and emphasis on student independence and choice (6) items. In addition, he also used a subset of the items concerning assessment as a subscale to monitor the perceived importance of rote memory as opposed to understanding in academic study. Richardson, (1994) carried out similar factor analysis with that of Ramsden, (1991) and Trigwell and Prosser, (1991) and concluded that the first-order factors broadly identified with the five original scales specified by Ramsden, (1991a, 1991b), although the composition of one

of these scales is not apparently adequate, and a number of items do not make any substantial contribution to the CEQ's effective structure. The second-order dimension was interpreted as an index of perceived teaching quality that was based upon students' experiences of good teaching in their courses and an emphasis on student independence and choice in learning; a result that was consistent with Ramsden, (1991b) and Trigger and Prosser, (1991). He therefore concluded that the CEQ can be appropriately employed to derive a measure of the quality of teaching on courses of study at British institutions of higher education. Both studies with the CEQ30 version of the questionnaire have a limited confidence with which they can be regarded and be generalized because of their small sample sizes; as a result there are also difficulties in comparing the results of the studies with different sample characteristics, and in drawing conclusions regarding the structure of the CEQ.

In a bid to address the problem of generalisability of the CEQ30 version, Wilson et al., (1997) used the short form (CEQ23) which was developed in consultation with the Department of Employment, Education and Training (DEET) and has been used in the Graduate Career Council of Australia (GCCA) national survey of graduates since 1993 till now. In this short version CEQ23, the original CEQ30 item scales of good teaching (6 items), clear goals and standards (4 items), appropriate workload (4 items) and appropriate assessment (3 items) were included in the instrument. Emphasis on independence scale was not added because of its comparatively weaker scale structure, but a new scale measuring generic skills (6 items) was added.

In their studies, Wilson et al.,(1997) administered the CEQ23 described above to a random sample of 2,130 representing equal number of males and female student from all years of study selected across 14 faculties of one Australian university in 1993. Full form of the Ramsden, (1991) CEQ36 containing all the six scales (good teaching, clear goals and standards, appropriate workload, appropriate assessment, independence and generic skills) were also administered to a sample of 7,370 representing all undergraduate students (years 1-3) of the same university in 1994. The same CEQ36 was also administered to a third sample comprising of 1,362 graduates representing the 1992 graduates from all faculties of the same university. In addition, two short scales (6 items each) were constructed, using items from the Approaches to Studying Inventory (Entwistle et al., 1979) to represent deep and surface approaches in order to establish the relationship between student's evaluations of teaching as measured by the CEQ and approaches to learning.

Wilson et al., (1997) carried out the same factor analysis on all the above three different samples and compared the results with those from Ramsden,

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(1991) and Richardson, (1994). They found out that the results from the CEQ23 were very similar to those for the long form CEQ36 and the pattern of factor loadings provided clear identification of all five CEQ scales with all the 23 items loading on their nominated scales. Their findings reinforced the confidence with which the CEQ can be used as an educational evaluation tool, since the structure of the CEQ36 incorporating the original five scales and the additional generic scale demonstrates a high degree of stability and the short form CEQ23 provides an equally stable structure too.

Additionally, they identified that the CEQ appears to measure constructs directly relevant to student's reported approaches to, satisfaction with and outcomes of their learning in university contexts. The CEQ's sensitivity to differences, along theoretical predictable lines, between traditional and problem-based and experiential programmes also suggests its useful application in research studies seeking to establish comparative educational efficacy of learning environments. Finally, they concluded that the CEQ can thus be regarded as a valid, reliable and stable instrument.

Barrie and Ginns, (2007) tried to link the national teaching performance indicators to improvements in teaching and learning in the classrooms. In their studies, they targeted current student's experience at both the subject level and the whole degree course level. They made use of two student evaluation of teaching survey to pool together the items for their survey. The two survey used are;

1. A modified version of the course experience questionnaire called the Student Course Experience Questionnaire (SCEQ) which adapts the items of the CEQ to reflect current enrolments and gathers data on student's overall experience of the current year of their whole degree course, to contribute data to internal teaching performance indicators. Statistical modeling of the adapted questionnaire has revealed that the SCEQ preserves the factor scale structure and validity of the original survey (Ginss et al., 2007).

2. A short internal subject-level survey called the Unit of Study Evaluation (USE) survey (Ginns &Barrie, 2004) designed to capture and echo the CEQ scales in a single item in the subject level survey. This was achieved by using the item that loaded most significantly on each factor scales of the CEQ and where there are no apparent core items, a new item was developed and trialed based on the psychometric studies of the CEQ. The first four items of the USE questionnaire mirrors the original CEQ factor scales (viz: good teaching, clear goals and standards, appropriate workload

and appropriate assessment). The USE and SCEQ generic skill items are those identified by the university's stated generic skills (Barrie, 2004), which is made up of the student's self assessment of their development of particular skills, not the named CEQ generic skills.

Barrie and Ginns, (2007) used the first set of six items from the USE survey (namely: good teaching, clear goals, generic skills development, appropriate workload, appropriate assessment and overall satisfaction with unit study quality) and administered it in class time to 1,820 units of study taught across 14 faculties at the main campus and two branch campuses of the university of Sydney in the year 2005.The second set of five scales and an overall satisfaction with degree quality item from the university's SCEQ was also administered to 6,501 individual undergraduate and postgraduate course work students for the same 14 faculties of the same university in the same year.

They examined the relationship between student evaluation of teaching at the subject level and student evaluation of teaching at the whole degree course level (i.e. for a collection of subjects) and they discovered that the results supported the proposed theoretical relationship between student's experiences of their degree courses and their experiences of the various subjects that make up the course as measured by the two different surveys. Also across the faculties, differences on the USE items were also mirrored in differences on the faculty SCEQ scale scores. This means that the aggregated data on students' experiences of a particular aspect of teaching and learning in the subjects they are studying is echoed in their overall experience of that aspect of teaching and learning for the degree those subjects contributes to.

A necessary premise to linking evidence-based subject-level teaching enhancement with institutional and national teaching quality measures is common, however, demonstrating statistically reliable relationships between the different measures used for these purposes provides further evidence. As a result of their findings, they were able to conclude that there is evidence that the subject-level quality enhancements will contribute to overall teaching quality as defined by the national quality assurance performance indicators.

4.4 Linking the Student Course Experience Questionnaire (SCEQ) to the Present Studies.

The present study is an extension of the application of the Student Course Experience Questionnaire (SCEQ) to 17 universities in Nigeria. As we can see

from the review of empirical studies above, the (SCEQ) has been a valid, relevant and widely used instrument of teaching quality evaluation in many developed countries. We believe that given the right premise, they could also be used as valid and relevant instruments in the Nigerian Universities in order to evaluate the quality of teaching and learning.

Though, student evaluation of teaching and learning is not a common practice in Nigeria, with this studies we hope to open up the discussion along this practice and to challenge academics to imbibe the culture and make it a regular practice that could be used in the future as a basis for funding higher institutions like it is being used in Australian higher institutions.

In considering this study therefore, we tried to link up the scales of the SCEQ to some dimensions in which quality has been generally and traditionally considered. The idea is to reduce the scales of the SCEQ in to three broad or major scales of quality as is the usual practice in industries and then base the evaluation in that perspective as we explore them. As such, the scales of the SCEQ were mapped to or linked to the traditional concept or dimensions of quality (viz: input, process and output), which in our case was translated as intended curriculum, curriculum in action and learned curriculum in accordance with previous studies in quality evaluation in medical education (Donabedian, 1966; Nelson, 1992 and Coles, 1985).

The above dimensions of quality (intended curriculum, curriculum in action and learned curriculum) are models used for quality and curriculum evaluation of medical and health care education in Donabedian (1966), Nelson (1992) and Coles (1985). Though in their studies they were dealing with only aspects of the medical curriculum in which students can evaluate, in our case we are dealing with aspects that covers the whole teaching and learning in which students are able to evaluate not just the curriculum. The common ground or basis for mapping the scales of the SCEQ to this three dimension model of evaluating quality of teaching and learning (viz: intended curriculum, curriculum in action and learned); is the fact that both models has their basis in aspects of quality that the students experience and are readily able to assess and evaluate. Another basis is that, both models proposes that it is the ways student experience particular aspects of teaching that influences their approach to learning and the quality of learning that results

Therefore, in a bid to achieve the link between the SCEQ and the three major dimensions of evaluating quality of teaching and learning proposed in this study, we made the scales of the SCEQ to become the items of the three dimensions of quality of teaching and learning in this study, and the scores of the three dimensions are the aggregated scores of the scales of the SCEQ. A

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new scale called **"Course level resource materials and facilities"** (that measures the quality of the teaching and learning environment) which is also relevant in the student evaluation of teaching and learning in Nigerian higher institution was added. The reliability of the newly added scale (0.71, 0.73 for pilot and main study respectively) are in resonance or in conformity with those of the SCEQ scales reported in previous studies.

In essence, the study is made up of three major scales of (Intended curriculum, curriculum in action and learned curriculum), whose items are the scales of the SCEQ and the specially added scale. The items of the new three dimension model of quality evaluation of teaching and learning are described below;

1. Intended Curriculum (IC):- Is made up of aspects that has to do with intensions or resources made available for the realization of the goals and intension of the student's courses. This major scale has 2 sub-scales considered as items and they are:

(a) Clear goal

(b) Course level resource materials and facilities

2. Curriculum in Action (CA):- Is made up of aspects that have to do with the practical activities and participation of the students towards their intended goals with the materials and resources made available to them for their courses. This major scale has 4 sub-scales considered as items and they are:

a. Good teaching

b. Emphasis on independence

c. Appropriate work load

d. Appropriate assessment

3. Learned Curriculum (LC):- Is made up of the results or outcomes of the student's learning as a result of intension and goals that was put to practical use. This major scale is made up of 3 sub-scales considered as items and they are:

(a) Surface learning strategy

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(b) Deep learning strategy

(c) Generic skills

This kind of linking or mapping of the scales of the SCEQ to other studies in quality evaluation of teaching and learning in higher education has never been done before, but in this study we have decided to do it, to see what contribution it will make to the SCEQ studies, and to see whether the outcome of the study will be reliable and consistent with other relevant studies in the area of quality of teaching and learning.

4.5 Target and Research Questions for the Present Study
(a) Target

The target of the thesis is first of all:
- To provide data on the construct validity of the Student Course Evaluation Questionnaire (SCEQ) using samples from the Nigerian universities;
- To identify if there are differences in the perceived quality of the different aspects of teaching and learning (the sub- scales of the questionnaire) across types of universities, gender, level of study, courses of study, and generation of universities and the probable reasons associated with these variations;
- To identify if there is any variation in the dimension in which we have categorized the quality of teaching and learning, across types of universities, gender, level of study, courses of study, and generation of universities and the probable reasons associated with these variations;
- To present a model based on the three dimensions in which we have categorized the activities related to teaching and learning. We also want to see whether these dimensions are inter-related.
- Want to know if student's general perception of their course and learning environment influences their learning strategy.
- Want to see if the student's general perception of their course and learning environment influences the skills acquired by the students (student's generic skills).
- We also want to see if student's general perception of course has any influence on the student's satisfaction with their course.

(b) Research Questions

Since the quality of a University depends on the quality of teaching, learning and research it offers and on the relative value it attaches to these aspects (Whalen, 2002). It then implies that activities of the lecturers, students and university management must be geared towards improving teaching, learning and research and such must be developed objectively. Therefore for good teaching and learning to be properly assessed, it is necessary to have both procedures for assessing it, criteria for judging it and documentation of these activities as evidence that criteria are met. In view of the above, the research will try to answer the following questions:

1.   Are there variations in the perceived quality of clear goals, course level resource materials and facility, good teaching, appropriate workload, appropriate assessment, emphasis on independence and learning strategy (surface and deep),
    • Across types of universities
    • Across gender
    • Across level of study
    • Across main courses of study
    • Across generation of universities

2. Are there any variation of the dimension of the quality of teaching and learning (i.e. Intended Curriculum, Curriculum in Action and Learned Curriculum)
    • Across university types,
    • Across gender and
    • Across level of study
    • Across courses of study,
    • Across university generation

3. Considering the three dimensions of quality presented in the model; (quality of intended curriculum, quality of curriculum in action and quality of learned curriculum). How do these quality dimensions inter-relate with one another and with the student's general perception of their course?

4. How does the student's general perception of their course and learning environment influence learning strategy?

5. Are the skills acquired influenced by the student's general perception of their course and learning environment?

6. Does the general perception of course and learning environment influence or relates to student's general satisfaction with course?

CHAPTER FIVE

METHODOLOGY

5.1 Introduction

Student's views on the aspects of quality of teaching and learning can be gathered in a variety of ways ranging from admission of hearsay evidence to informal methods such as the staff-student committee, to formal methods such as the use of questionnaire. Each of these ways of gathering views has its advantage and disadvantages. Some of the methods enable getting clear information on time and there by making it possible to respond rapidly to prevent an issue becoming bigger than it actually is. Some helps make changes that would benefit the present cohort of students.

On the other hand, the problems of using some methods are the problems of assessing the validity of student's views, un-representation and student's reluctance to respond to questionnaire and also the fear on the part of the students, to criticize aspects they needed to criticize with respect to open ended questionnaire.

One promising way or approach to gathering student's views on the quality of their experiences on different aspects of teaching and learning is the use of questionnaire. The only major thing that needs to be put in place perfectly is the objective of the questionnaire. Some questionnaires might be put in place to capture student's views on content and delivery, some to capture their experiences on their whole courses and yet some their total learning experiences. Whichever objective the method employed is meant to capture, the most important aspect in the use of student evaluation is the development of the questionnaire, administration of the questionnaire, analysis of the questionnaire and the dissemination of the information.

The development of the questionnaire also varies depending on the objectives of the study. Items for some questionnaires are derived using personal construct- theory, (e.g. Reid and Johnston, 1999) who developed a questionnaire by obtaining lecturer's and student's views on what constitutes good teaching. Some use focus group of students to elicit constructs (e.g. Harvey et. al., 1997) who developed the student satisfaction manual based on pioneering work carried out at the Centre for Research in to Quality (CRQ) at the University of Central England in Birmingham. Some use and adapt constructs from literature or constructs from other institutions, (e.g. Kerridge and Mathews, 1998) who chose 12 items for their student perception of

quality questionnaire from variety of course feedback forms. Some make use of questionnaires validated by research such as the Student's Evaluation of Educational Quality (SEEQ) developed by Marsh and his collogues (Marsh and Dunkin, 1997), the Course Experience Questionnaire (CEQ) developed and used as a measure of perceived teaching quality in national surveys of all graduates in Australian higher education system (Wilson et al., 1997) and the Student Course Experience Questionnaire (SCEQ) a modified version of the course experience questionnaire used to gather data on current student's teaching and learning experiences in the university of Sidney, Australia (Barrie & Ginns, 2007).

However, these formal methods only tap student's perception of the actual provision and do not assist in determining their expectations. We know that, teaching and learning is a process in which a student is transformed in a number of ways, we therefore desire to evaluate the quality of the processes involved in teaching and learning in which the students are able to evaluate and make judgements about, not just the quality of the service alone. One view that is consistent with the above is the view that the difference between a student's expectation and student's perception of teaching and learning in their whole degree course determines their satisfaction with the degree course.

In this chapter therefore, section 5.1 sets in the introduction, section 5.2 talks about the methodology, where the pilot test background, sample and brief analysis were highlighted, and section 5.3 brings in the methodology employed in the main study sample, where procedures, materials and scale characteristics of the main study sample are discussed.

5.2 Pilot test

Background and Sample:

A pilot test of the instrument developed for this study started during the period of winter semester and stretches out to the spring semester (February - April, 2008) which was part of a period referred to as the "2nd semester" in the Nigerian higher education system. The choice of this period was based on the fact that by this time the students had already finished 1st semester of the 2007/2008 session and had began the 2nd semester of the same session. Therefore, they will be able to make better judgments about their experience of aspects of quality of their course of study at the level in which they are during this period, having at least gone through the major part of the session. That is to say at this period (February-April), even the 1st year level students must have finished first semester and had began 2nd semester, so they might

have gone through close to three quarters of the course work relevant to their course of study at the 1st year level and so will be able to make better judgments based on their 1st year level experience.

The questionnaire for the pilot study was made up of 60 items of which 55 items were spread across nine sub-scales categorized under three major scales referred to as dimensions of the quality of teaching and learning. The nine sub-scales are: Clear goals (6 items), course level materials and facilities (10 items), good teaching (10 items), emphasis on independence (6 items), appropriate work load (5 items), appropriate assessment (5 items), surface learning strategy (4 items), deep learning strategy (4 items) and generic skills (5 items). The remaining 5 items consist of the first 4 items which are biographical items and the last item which is the 60th item is an item that was added to measure the student's general satisfaction with the course of their study at the level they were during the period of administration of this questionnaire.

The items in the pilot study questionnaire were scored on a scale of 1 through 5, where 1 "means strongly disagree", 2 means "disagree", 3 means "undecided", 4 means "agree" and 5 means "strongly agree". The negatively worded items were scored in a reverse form to understand areas where problems arise in the student's evaluation of their course of study.

Most of the items and the style of questions in the pilot questionnaire were pulled together from the CEQ36, CEQ30 and CEQ23 instruments which were developed and used in Ramsden, (1991) and Richardson, (1994). Some of the items, especially those of the course level resources and facilities scale were items developed using personal construct. That is to say the items were extracted from interviews with students about their teaching and learning environment prior to the pilot study.

The questionnaires for the pilot study were administered to a random sample of 250 students from 2 universities; university of Ibadan from the western part of Nigeria representing the federal universities and the Adamawa state university, Mubi from the Northern part of Nigeria representing the state universities. The questionnaires were randomly distributed to a random sample of undergraduate students across 12 main courses of study in the faculty of sciences. The main courses of study includes: biochemistry, biology, botany, chemistry, computer science, geology, information technology, mathematics and statistics, microbiology, operational research, physics, zoology. The 12 main courses of study were further categorized in to five major course category based on their similarities of course background. That is to say, the courses are categorized based on the units of programmes that

made up the faculty of sciences in most Nigerian Universities. The categorization of these units is as follows:

1. **Chemical sciences**; comprising of chemistry, biochemistry and geology.

2. **Biological sciences**; comprising of biology, botany, microbiology and zoology

3. **Computer sciences**; comprising of computer science and information technology.

4. **Mathematical sciences**; comprising of mathematics and statistics, operational research and physics.

Out of the total of 500 questionnaires administered for the pilot trial, only 306 questionnaires were returned making a 61.2% pilot trial response rate.

Scale characteristics of the pilot trial:

Reliability analysis of each scale of the pilot study questionnaire was carried out using Cronbach's alpha coefficient in order to determine the internal consistency of the scales. The internal consistency analysis (cronbach's alpha) of the scales of the pilot study shows less convincing evidence of the stability when compared with those from Ramsden, (1991) and with those from 1993 and 1994 student samples in Wilson et al. (1997). Similarly, the values of the cronbach's alpha coefficient for the deep and surface scales of this pilot study are comparatively less when compared with those from the 1992 samples in Wilson et al. (1997). Table 5.1 below shows the Cronbach's alpha coefficient values from Ramden (1991), Wilson et al. (1997) and those from the present pilot study.

Table 5.1 Cronbach's Alpha Coefficient from Ramsden (1991), Wilson et al. (1997) the Present Pilot Study

| CEQ scale | Ramsden (1991) | Wilson et al. (1997) | | | Present pilot study |
		1993 student sample	1994 student sample	1992 student sample	
Clear goals	0.80	0.82	0.82	0.76	0.56
Course resources and facilities	-	-	-	-	0.71
Good teaching	0.87	0.86	0.88	0.88	0.80
Emphasis on independence	0.72	0.68	0.67	-	0.60
Appropriate workload	0.77	0.75	0.74	0.69	0.61
Appropriate assessment	0.71	0.74	0.73	0.70	0.53

Surface learning	-	-	-	0.69	0.54
Deep learning	-	-	-	0.67	0.60
Generic skills	-	0.80	0.79	0.77	0.77

From table 5.1 above, it is also evidently clear that most of the values of the alpha coefficient for the pilot study are lower (except for good teaching, generic skills and course level resource scales) which are higher than the limit of 0.71 suggested by comrey as indicating acceptable internal consistency cited in Wilson et al. (1997).

Further investigation of the items of the scale in the pilot study reveals that some of the items needed to be removed or reworded because they do not contribute much to the scales in order to achieve internal consistency of the scales. This was further confirmed by the weak correlation between items revealed by the values of the inter-item correlation coefficient. See the inter-item correlation coefficient matrix for all the scales in (Appendix 1.1. A -I).

Brief Analysis of the Pilot Study:

Descriptive analysis and analysis of variance (ANOVA) was run on the data of the pilot study in order to investigate variations of student's evaluations across gender, university type and across courses of studies. The analysis revealed that out of the 306 students that responded to the 500 questionnaire administered for the pilot study, 222 were males and 84 were females. This makes up a male and female response rate of 44.4% and 16.8% respectively. The analysis further revealed that there are no significant gender differences in the student's evaluation of their courses. That is to say both males and females evaluated their courses the same way. See Appendix 1.5(a) and 1.5(b).

In addition, out of the 306 students that responded to the 500 questionnaire administered for the pilot study, 116 and 190 students responded from the state and federal universities thereby making up a state and federal universities response rate of 23.2% and 38% respectively . Further analysis revealed that there exist a significant differences (at 0.05% levels) in the student's evaluation of clear goals, course level resources, good teaching and generic skills between the two types of universities (federal and state). Students from the state university perceived the provision of clear goals, course level resources, good teaching and generic skills better than their counterparts from the federal university. This is a result that is consistent with the between institutions differences on at least one scale reported by Ramsden, (1991). See Appendix 1.4(a), 1.4(b) and 1.4(c).

Finally, out of the 306 students that responded to the 500 questionnaire administered for the pilot study, 21.2%, 14.2%, 13% and 12.8% are the course of study response rates for chemical sciences, biological sciences, computer sciences, and mathematical sciences respectively. The analysis revealed that there exist significant differences (at 0.05% level) in the students' evaluation of appropriate workload, surface learning and deep learning across course of study. Students from biological sciences tend to evaluate their course better, having an appropriate workload than students from computer sciences. Also the students' evaluation of surface and deep learning strategies revealed that while students from biological sciences tend to adopt surface learning strategies their counterparts from mathematical sciences adopts deep learning strategies. This suggests that there is something very different about the student's rating of learning strategies in the above mentioned units of courses within the institutions. This is also a situation that was consistent with those found by Ramsden, (1991) when he found large variations in student's rating of appropriate workload across disciplines in institutions. See Appendix 1.6(a), 1.6(b) and 1.6(c) for more details.

Based on the characteristics of the result of the pilot study, we made the following adjustment in the main study:

- We decided to include generation of universities in order to assess variation across university generation. University generation is categorized according to year of establishment and approval by the Nigeria Universities Commission (NUC). Below are the categorizations of the universities:

    1. First generation universities: Are those universities established and approved before or during Nigerian independence in 1960 until 1969.

    2. Second generation universities: Are those universities established and approved between 1970 and 1979.

    3. Third generation universities: Are those universities established and approved between 1980 and 1989.

    4. Fourth generation universities: Are those universities established and approved between 1990 and 1999

    5. Fifth generation universities: Are those established and approved between 200 till date.

- We included some private universities in the sample in order to cover all the types of universities in Nigeria. Therefore we have the three types of universities (viz: private universities, state universities and Federal universities).

- We increased the number of universities to be sampled from two universities in the pilot study to 17 universities in the main study, so as to increase the sample size for a suitable generalization of results.

- We also reduced the number of questionnaire to be administered to each university in the main study from 250 used in the pilot study to 200, in order to reduce cost and still have a reasonable sample size for the entire study.

- We removed all the items that did not contribute to the internal consistency of the scales in the analysis of the main study in order to improve the reliability of the scales of the main study. This will come in later in the discussions.

- In order to establish our link between the CEQ scales and the three dimensions of quality presented in this study, we sum up the sub-scales under each dimension in the main study in order to produce a score for each dimension, (i.e the scores of intended curriculum dimension, curriculum in action dimension and learned curriculum dimension), which was later used for analysis in the main study.

5.3 Main Study

Samples and Procedures:

One broad –based survey of students from 17 Nigerian universities was conducted. 17 out of 92 Universities were selected from the six Geo-political zones of Nigeria. The survey covered 18.5% of the Nigerian universities. The universities surveyed from each geo-political zone are as follows:

North - Eastern Zone
1. Adamawa State University, Mubi. (State Government owned University approved in 2002).

2. Federal University of Science and Technology, Yola. (Federal Government owned University approved in 1981).

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3. University of Maiduguri, Maiduguri. (Federal Government owned University approved in 1975).

North - Central Zone

1. University of Abuja. (Federal Government owned University approved in 1988).

2. University of Jos, Jos. (Federal Government owned University established in 1975).

3. Nassarawa state University, Keffi. (State Government University approved in 2002)

North - Western Zone

1. Ahmadu Bello University, Zaria. (Federal Government owned University approved in 1962).

2. Kano State University of Technology, Wudil. (State Government owned University approved in 2000).

South - Eastern Zone

1. Ebonyi State University, Abakaliki. (State Government owned university approved in 2000).

2. Imo State University, Owerri. (State Government owned university approved in 1992).

3. University of Nigeria, Nsukka. (Federal Government owned University approved in 1960).

South- Southern Zone

1. Rivers State University of Science and Technology, Port-Harcourt. (State Government owned University approved in 1979).

2. Madonna University, Okija. (Private owned university approved in 1999).

3. University of Calabar, Calabar. (Federal Government owned University approved in 1975)

South - Western Zone.

1. Covenant University, Ota. (Private owned university established in 2002).

2. Lagos State University Ojo, Lagos. (State Government owned university established in 1983).

3. University of Ibadan, Ibadan. (Federal Government owned University established in 1948).

The universities list and year of approvals were drawn from the approved list of universities in Nigeria as at November, 2007. (NUC, 2008)

The questionnaires for the main study sample were administered during the period April- July, 2008; almost the same period as the pilot study only that the period for the main study was closer to the end of the second semester which marks the end of the same session, 2007/2008 session in the Nigerian higher education system. Participants were randomly selected across 13 departments of faculty of sciences of each sampled university, and these includes (chemistry, biochemistry, geology, biology, zoology, botany, microbiology, computer sciences, information technology, mathematics & statistics, operational research, physics and others).The category "Others" signifies student's responses from departments other than the departments in faculty of sciences.

Participants were given the questionnaire at random during their student's departmental meeting and were asked to complete and return to the student's president in charge of the department. In some of the universities, students were contacted through their departmental secretaries, in which the secretaries went round during class period to administer the questionnaire to students' of each level of that department at random and students were asked to fill and return to the departmental secretary's office. Some universities assigned class monitors to administer the questionnaires at random during classes, collect the responses and return the responded questionnaires to the department office. In each case, the questionnaires were administered randomly to current students at all levels of each department during the period of the survey.

As adjusted after the result of the pilot study, 200 instead of 250 questionnaires were administered in each of the 17 universities in the sample, making a total of 3,400 questionnaires administered in the whole survey for the main study sample.
A total of 2,221 usable responses (response rate of 65.3%) were obtained, and a minimum institutional response rate of 30% was also achieved. The whole

main study survey comprised of 41.7% and 32.6% male and female response rate respectively. The university type response rate stood approximately at 7.4% for private universities, 22.4% for state universities and 35.6% for federal universities. 9.5% of the responses came from first year level students, 13.4% from the second year level students, 20.9% from the third year level students and 21.6% from the final year students.

Considering the course response rate, 22.4% of students responded from the chemical sciences, 15.5% from the biological sciences, 9.8% from the computer sciences, 16.7% from the mathematical sciences and 0.9% from students of the "other" departments. That is to say, from departments other than those from the faculty of sciences.

Finally, 9.6% of students responded from the first generation universities, 18.4% from the second generation universities, 18.1% from the third generation universities, 11.9% from the fourth generation universities and 7.3% responses from the fifth generation universities.

Materials for the Main Study Sample:

The questionnaire for the main study sample was made up of 61 items instead of the 60 items in the pilot study. This was because of the inclusion of the biographical item "university generation". The first 5 items were biographical items and the remaining 56 items were spread across nine sub-scales categorized under three major scales referred to as dimensions of the quality of teaching and learning. The nine sub-scales are: Clear goals (6 items), course level materials and facilities (10 items), good teaching (10 items), emphasis on independence (6 items), appropriate work load (5 items), appropriate assessment (5 items), surface learning strategy (4 items), deep learning strategy (4 items) and generic skills (5 items). The last item which was the 61st item is an item that was added to measure the student's general satisfaction with the course of their study at the level they were during the period of administration of this questionnaire.

The items in the main study sample questionnaire were also scored on a scale of 1 through 5, where 1 "means strongly disagree", 2 means "disagree", 3 means "undecided", 4 means "agree" and 5 means "strongly agree". The negatively worded items were scored in a reverse form to understand areas where problems arise in the student's evaluation of their course of study.

Most of the items and the style of questions in the main study sample questionnaire were also pulled together from the CEQ36, CEQ30 and CEQ23 instruments which were developed and used in Ramsden, (1991) and Richardson, (1994). Some of the items, especially those of the course level resources and facilities scale were items developed using personal construct.

That is to say the items were extracted from interviews with students about their teaching and learning environment as was indicated in the pilot study.

In order to establish the relationship between student's evaluations of teaching quality as measured by the scales of the questionnaire and approaches to learning, the two sub-scales of learning strategy (surface and deep) learning were used.

In order to also establish the relationship between generic skills and general perception of course, we sum up all the responses of students over all the scale and use it as a score or measure for their general perception of their course.

This measure of their general perception of course was also used to establish a relationship between the general perception of their course and the general satisfaction with their course.

Scale Characteristics of the Main Study Sample:

Reliability analysis of each scale of the main study sample was also carried out using Cronbach's alpha coefficient in order to determine the internal consistency of the scales. The internal consistency analysis (cronbach's alpha) of the scales of the main study sample shows more convincing evidence of stability when compared with those from Ramsden, (1991) and with those from 1993 and 1994 student samples in Wilson et al., (1997). The value for the alpha coefficient of the present main study sample are higher than those from both Ramsden, (1991) and those from 1993 and 1994 student samples in Wilson et al., (1997) in the appropriate workload scale (0.79). Also, the value from this main study sample are higher than those from 1993 and 1994 student samples in Wilson et al., (1997) in the generic skill scale (0.88).

Similarly, the values of the cronbach's alpha coefficient for the deep and surface scales of this main study sample are comparatively higher (0.73 and 0.75 respectively) when compared with those from the 1992 samples in Wilson et al., (1997). Even the new scale "course level resources" have Cronbach's alpha coefficient that is consistent with those from previous research. Table 5.2 below shows the Cronbach's alpha coefficient values from Ramden, (1991), Wilson et al., (1997) and those from the present main study sample.

Table 5.2 Cronbach's Alpha Coefficient from Ramden, (1991), Wilson et al., (1997) the Present Main Study Sample

| CEQ scale | Ramsden (1991) | Wilson et al., (1997) | | | Present main study sample |
		1993 student sample	1994 student sample	1992 student sample	
Clear goals	0.80	0.82	0.82	0.76	0.72
Course resources and facilities	-	-	-	-	0.73
Good teaching	0.87	0.86	0.88	0.88	0.85
Emphasis on independence	0.72	0.68	0.67	-	0.61
Appropriate workload	0.77	0.75	0.74	0.69	0.79
Appropriate assessment	0.71	0.74	0.73	0.70	0.65
Surface learning	-	-	-	0.69	0.75
Deep learning	-	-	-	0.67	0.73
Generic skills	-	0.80	0.79	0.77	0.88

From table 5.2 above, it is also evidently clear that most of the values of the alpha coefficient for the main study sample are higher (except for the scales emphasis on independence and appropriate assessment) which are lower than the limit of 0.71 suggested by Comrey as indicating acceptable internal consistency cited in Wilson et al., (1997).

This implies that alpha coefficients for the main study sample indicate moderate to high levels of internal consistency for all scales (see table 5.2). Reliability coefficients for the original five scales and the newly added scales were consistent with those from Ramsden's, (1991) pilot study and Wilson et al., (1997), some were marginally lower. While marginally lower on some scales; nevertheless demonstrate acceptable levels of internal consistency. Thus, the instrument for the main study sample can be considered reliable instrument.

CHAPTER SIX

ANALYSIS AND PRESENTATION OF RESULTS
Reliability Criterion:

6.1 Introduction

In the previous chapter we looked at the reliability of both the pilot and main study instruments through the use of simple reliability test. In this chapter, extensive analyses were conducted to assess the characteristics of the main study instrument as a measure of evaluating quality of teaching and learning. Various reliability test of the instrument were statistically considered. All statistical analysis were conducted using the program SPSS for windows Version 13.0

In this chapter, we shall consider the reliability criterion of the main study sample instrument via exploratory factor analysis. Section 6.1 introduces the chapter; section 6.2 gives a brief summary of the item exploratory factor analysis of the main study sample instrument. Section 6.3 gives the summary result of the scale exploratory factor analysis for the main study sample instrument

6.2 Item Exploratory Factor Analysis (EFA) of the Main Study Instrument

Item and scale exploratory factor analysis (EFA) was conducted on the main study sample using principal components factor analysis with varimax rotation. The choice of principal component factor analysis provided a basis for direct comparison with Ramsden's, (1991) pilot study and Wilson et al., (1997). The varimax method of rotation is recommended where items are assumed to be correlated with each other. Given the evidence of positive and moderate inter-correlations demonstrated between the CEQ scales (Ramsden, 1991; Wilson et al., 1997), a varimax rotation was deemed fit for the analysis of this study and a combination of the scree test (Cartell,1966) and the eigenvalue >1 rule (Kaiser,1974) were used for determining the appropriate number of factors to be extracted. Factor loadings of 0.3 and above were selected for interpretations. See table 6.1 below for the summary of the item factor analysis.

Item Factor Analysis:

Item factor analysis of the main study sample confirmed firstly the original five factor structure reported by Ramsden, (1991), secondly the generic skill reported by Wilson et al., (1997) and thirdly the structure of the new course level resource and facility sub-scale added in this study.

A very stable and virtually eleven (11) factor solution accounting for 53% of the variation was produced. Factor 1, Good teaching (21.7%); factor 2, Generic Skills (10.4%); factor 3, Course Level Resources (6.8%); factor 4, Surface Learning (5.1%); factor 5, Clear Goals (3.5%); factor 6, Appropriate Workload (2.9%); factor 7, Deep Learning (2.4%); factor 8, Emphasis on Independence (2.3%); factor 9 , Appropriate Assessment (2.1%); factor 10, Course level resources again (1.9%) and finally factor 11, Emphasis on Independence again (1.7%). See table 6.1 below for the percentage of item total factor variations.

Table 6.1Total Explained Variation for Item Factor Analysis of the Main Study Instrument:

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13,934	21,772	21,772	13,934	21,772	21,772
2	6,706	10,478	32,251	6,706	10,478	32,251
3	4,352	6,800	39,051	4,352	6,800	39,051
4	3,291	5,142	44,193	3,291	5,142	44,193
5	2,250	3,516	47,709	2,250	3,516	47,709
6	1,868	2,919	50,628	1,868	2,919	50,628
7	1,580	2,469	53,098	1,580	2,469	53,098
8	1,512	2,362	55,460	1,512	2,362	55,460
9	1,346	2,103	57,562	1,346	2,103	57,562
10	1,245	1,945	59,508	1,245	1,945	59,508
11	1,130	1,765	61,273	1,130	1,765	61,273

The first factor comprised of all ten items from the Good Teaching scale plus an additional item 8 from clear goals scale, item 35 from Emphasis on Independence scale and 19* from Course Level Resources scale. The second factor comprised of all five items of the Generic Skills scale and two additional items (28 and 29) from Good Teaching scale, item 52 from Deep Learning scale and item 32 from Emphasis on Independence scale. The third factor comprised of 8 out of the ten items of the Course Level Resources scale, and item 30 from the Good teaching scale. The fourth factor comprised of all four

items of the Surface Learning scale and item 45 from Appropriate Assessment. The fifth factor comprised of all the six items of the Clear Goals scale. The sixth factor comprised of four items out of the five items of the Appropriate Workload scale. The seventh factor consists of all four items of the Deep Learning scale. The eighth factor is made up of two out of the six items of the Emphasis on Independence scale, item 14 of the Course Level Resources scale and item 39 of the Appropriate Workload scale. The ninth factor comprised of all the five items from the Appropriate Assessment scale and item 47 from the Surface Learning scale. The tenth factor comprised of four items out of the ten items from the Course Level Resources scale. Finally, the eleventh factor is made up of two items out of the six items of the Emphasis on Independence sub-scale and item 27* from the Good Teaching sub-scale. The main study sample produced factor structure which clearly identified all 9 sub-scales of the instrument.

In support of the findings of Ramsden, (1991) and Wilson et al., (1997), all the items of the present study loaded on one of the eleven factors. Eleven items loaded significantly on more than one factor. Items 27* and 28 *"Lecturers show no interest in what students have to say "and " This course tries to get the best out of its students"* loaded most strongly (0.48) on the Emphasis on Independence sub-scale and (0.42) on the Generic Skills sub-scale than on its designated Good teaching sub-scale (0.34) and (0.38) respectively. This might suggest that students perceived lecturer's lack of interest on what students have to say to be one of the items that describes the independency of the lecturer's on the students, hence belongs to the emphasis on independence rather than a good teaching item. So also they perceived the course getting the best out of them to be one of the generic competencies acquired by university education rather than just a measure for good teaching.

Similarly, item 12 and 14 *"Laboratories have enough facilities for my course" and "Available computers are adequate for my course"*, loaded most significantly (0.49) and (0.43) on another Course Level Resource sub-scale described by factor 10. This might be suggesting that the two items relating to availability of materials and facilities can as well be separated in to distinguished categories. Probably those materials that have to do with computer laboratory and those that have to do with chemical laboratories. While these two items loaded most significantly on a second similar sub-scale as their designated sub-scale, item 14 also loaded significantly (0.39) on the Emphasis on Independence sub-scale, suggesting that having available computers emphasizes on independence of the students in their studies.
Item 19* *"Books and materials are outdated for my course"* originally loaded (0.40) on the second Course Level Resources sub-scale described by factor 10, also loaded lower (0. 35) on the Good Teaching sub-scale. Item 47, *"By*

working hard around exams period, it will be possible to get through this course" which loaded (0.58) on its original Surface Learning sub-scale also loaded to a lesser extent (0.30) on the Appropriate Assessment sub-scale, suggesting that students view being able to get through the course by working hard just around the examination period as an appropriate assessment method.

Item 8, *"Lecturers makes clear what is expected from the students right from the start of the course"* loaded most significantly (0.55) on its designated Clear Goals sub-scale, but it also loaded significantly (0.34) on the Good Teaching sub-scale. In a similar way, item 52, *"I' am interested in understanding, interpreting and relating what I' am taught"* loaded most significantly (0.68) in its designated Deep Learning sub-scale and it also loaded (0.30) on the Generic sub-scale. Also item 29 and 30, *"Lecturers have a good practical knowledge of the course"* and *" Lecturer- student ratio is appropriate"* loaded most significantly (0.43) and (0.42) on their designated Good Teaching sub-scale and also on the Generic Skills sub-scale (0.37) and the Course Level Resources sub-scale respectively.

Consequently, item 45, *"Too many lecturers ask questions just about facts"* loaded both on its designated Appropriate Assessment sub-scale (0.60) and on the Surface learning sub-scale (0.31). Out of the eleven items that loaded on more than one sub-scale, only four items loaded higher on factors different to their nominated sub-scales. These items are items (12, 14, 27* and 28).

Finally, the sub-scales of Course Resource Materials and Emphasis on Independence loaded more than once. In both cases, they loaded higher in their first loadings (0.89 and 0.88) than in their second loadings (0.34 and 0.32) respectively. Also, the items which loaded in their first loadings are more (8 items and three items) when compared to those in their second loadings (5 items and two items) respectively. This might suggest further investigation in to the structure of these two sub-scales in relation to the wording of some of their items. Table 6.2 presents the pattern of significant item loadings for the main study sample, and figure 6.1 shows the scree plot used in determining the 11 factors extracted above.

Table 6.2 Summary results of the Item Exploratory Factor Analysis (EFA) of Main Study Instrument using Principal Component Analysis (PCA) with Varimax Rotation

items	Sub-scales	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
Sub-scale 1	Good Teaching	0.83										
Item 21	"	0.54										
Item 22	"	0.69										
Item 23	"	0.71										
Item 24	"	0.66										
Item 25	"	0.64										
Item 26	"	0.64										
Item 27*	"	0.34										0.48
Item 28	"	0.38	0.42									
Item 29	"	0.43	0.37									
Item 30	"	0.42		0.31								
Sub-scale2	Generic Skills		0.91									
Item 55	"		0.72									
Item 56	"		0.78									
Item 57	"		0.75									
Item 58	"		0.74									
Item 59	"		0.77									
Sub-scale 3	Course Level Resources			0.89							0.34	
Item 11	"			0.63								
Item12	"			0.36							0.49	
Item 13	"			0.69								
Item 14	"			0.33					0.39		0.43	
Item 16	"			0.76								
Item 17	"			0.77								
Item 18	"			0.74								
Item 20	"			0.55								
Item 15*	"										0.63	

Item 19*	"	0.35								0.40
Sub-scale 4	Surface Learning			0.93						
Item 47	"			0.58					0.30	
Item 48	"			0.75						
Item 49	"			0.76						
Item 50	"			0.75						
Sub-scale 5	Clear Goals				0.88					
Item 5	"				0.67					
Item 6	"				0.64					
Item 7*	"				0.51					
Item 8	"	0.34			0.55					
Item 9	"				0.53					
Item 10	"				0.53					
Sub-scale 6	Appropriate Workload					0.92				
Item 37*	"					0.77				
Item 38*	"					0.74				
Item 40*	"					0.75				
Item 41*	"					0.70				
Item 39	"							0.46		
Sub-scale 7	Deep Learning						0.89			
Item 51	"						0.69			
Item 52	"		0.30				0.68			
Item 53	"						0.73			
Item 54	"						0.56			
Sub-scale 8	Emphasis on Independence							0.88		0.32
Item 33	"							0.72		
Item 34	"							0.78		
Item 35	"	0.53								
Item 31*	"									0.43
Item 36*	"									0.49
Item 32	"		0.47							
Sub-scale 9	Appropriate Assessment								0.86	

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Item 42	"										0.58		
Item 43	"										0.50		
Item 44	"										0.67		
Item 45	"					0.31					0.60		
Item 46	"										0.49		

Note: F = Factor and (*) stands for reversed items. See the full analysis in Annex 1.2. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. A Rotation converged in 10 iterations. Factor loadings ≥0.3 are shown on the table.

Figure 6.1: Scree Plot for the Item Factor Analysis

Component Number

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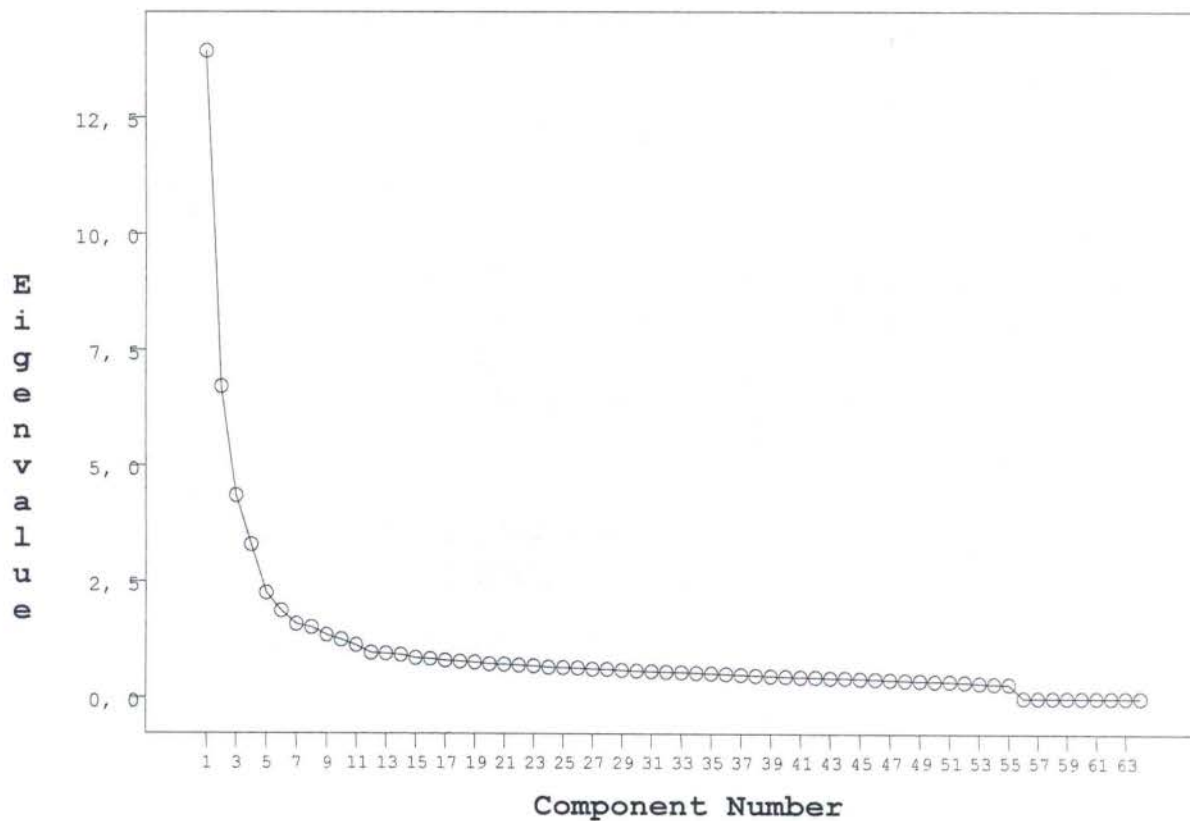
6.3 Scale Exploratory Factor Analysis (EFA) of the Main Study Instrument

In order to link the sub-scales of the main study instrument to the three dimensions of quality of teaching and learning we proposed in this study; we considered the scale factor analysis, where the scores of the sub-scales are made up of the total score of items under each sub-scale and each subscale becomes the item of the scale we called dimension of quality.

Just like in the case of the item factor analysis, the scale factor analysis was done using principal component analysis with varimax rotation; since there is evidence of positive and moderate inter-correlations demonstrated between the sub-scales of the main study sample. See Appendix 1.3 for the table of the sub-scales correlations.

A combination of the scree test (Cartell, 1966) and the eigenvalue >1 rule (Kaiser, 1974) were also used for determining the appropriate number of factors to be extracted. Factor loadings of 0.3 and above were selected for interpretations.

The scale factor analysis for this main study confirmed the three factor structure proposed by this study (intended curriculum, curriculum in action and learned curriculum). An additional factor was extracted, which also tries to describe the structure of the learned curriculum scale.

Again, a very stable and virtually four (4) factor solution accounting for 78% of the variation was produced. Factor 1, Learned curriculum (37%); factor 2, Learned curriculum (20.16%); factor 3, Intended Curriculum (11.29); and finally factor 4, Curriculum in Action (9.13%). See table 6.3 below for the percentage of scale total factor variations.

Table 6.3 Total Explained Variation for Scale Factor Analysis of the Main Study Sample:

Compone nt	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,543	37,856	37,856	4,543	37,856	37,856
2	2,419	20,160	58,016	2,419	20,160	58,016
3	1,355	11,294	69,310	1,355	11,294	69,310
4	1,096	9,132	78,442	1,096	9,132	78,442

Factor analysis of sub-scale scores produced four factor solutions. The first factor comprised of two out of the three sub-scales of the learned curriculum

scale plus one additional sub-scale from the curriculum in action scale and one other sub-scale from the intended curriculum scale. The second factor also comprised of one out of the three sub-scales of the learned curriculum scale plus one sub-scale from the curriculum in action scale. The third factor is made up of all the sub-scales in the intended curriculum scale and an additional sub-scale from the curriculum in action scale. Lastly, the fourth factor comprised of two out of the four sub-scales of the curriculum in action scale. The scale factor analysis produced factors which clearly identified the three main scales that represent the three main dimensions of quality of teaching and learning we have proposed in this study.

All the sub-scales of the main study instrument loaded on one of the 4 factors with the exception of the appropriate workload sub-scale. This sub-scale did not load on any of the four factors extracted and this may suggest its lack of contribution to the scale structure of the curriculum in action, which is its designated quality dimension.

One sub-scale (9) loaded on a factor different to its nominated scales. This Sub-scale (Appropriate Assessment) loaded highly (0.77) on the second factor which described the learned curriculum dimension for the second time. Its designated scale was curriculum in action; perhaps the students viewed appropriate assessment to be a learned curriculum instead of curriculum in action.

Two sub-scales (1 and 5) loaded on more than one of the four scales. Sub-scale 1 (Good Teaching) loaded on the three scales of intended curriculum, curriculum in action and learned curriculum. In fact it loaded the least (0.36) on its designated scale which is curriculum in action, a little bit higher (0.39) on the intended curriculum and loaded higher (0.59) on the learned curriculum. This may also suggest that good teaching is a better index of the learned curriculum scale which may better describe the learned curriculum dimension of quality than the curriculum in action dimension of quality.
Sub-scale 5 (Clear Goals) loaded higher (0.59) on the first factor which described the learned curriculum scale for the first time and loaded lower (0.33) on the intended curriculum scale, which is its nominated scale. This may also suggest that Clear goals is a better index of the learned curriculum scale which may better describe the learned curriculum dimension of quality than the intended curriculum dimension of quality.

On the learned curriculum scale, deep learning sub-scale (0.86), surface learning sub-scale (0.85) and Generic skills sub-scale (0.88) loaded highly and they did so in their nominated scales. Course level resources sub-scale (0.96) and Emphasis on independence sub-scales were the only sub-scales that

loaded highly on their nominated scales of Intended curriculum and curriculum in action respectively. See table 6.4 and figure 6.2 below for the summary result of the scale factor analysis and the scree plot of the scale factor analysis respectively

Table 6.4: Summary results of Scale Exploratory Factor Analysis (EFA) of Main Study Instrument using Principal Component Analysis (PCA) with Varimax Rotation

Sub-scales	Scales	F1	F2	F3	F4
Scale 1	Learned Curriculum	0.85			
Sub-scale 7	"	0.86			
Sub-scale 2	"	0.88			
Scale 2	Learned Curriculum		0.42		
Sub-scale 4	"		0.85		
Scale 3	Intended Curriculum			0.90	
Sub-scale 5	"		0.59	0.33	
Sub-scale 3	"			0.96	
Scale 4	Curriculum in Action	0.46		0.33	0.71
Sub scale 1	"	0.56		0.39	0.36
Sub-scale 8	"				0.89
Sub-scale 9	"		0.77		

Note: Sub-scale numbering (i.e. sub-scale 1, 2... 9) follows the order in the item factor analysis, not the order on the instrument. Details of factor analysis is seen in appendix 1.2.

Figure 6.2: Scree Plot for the Scale Factor Analysis
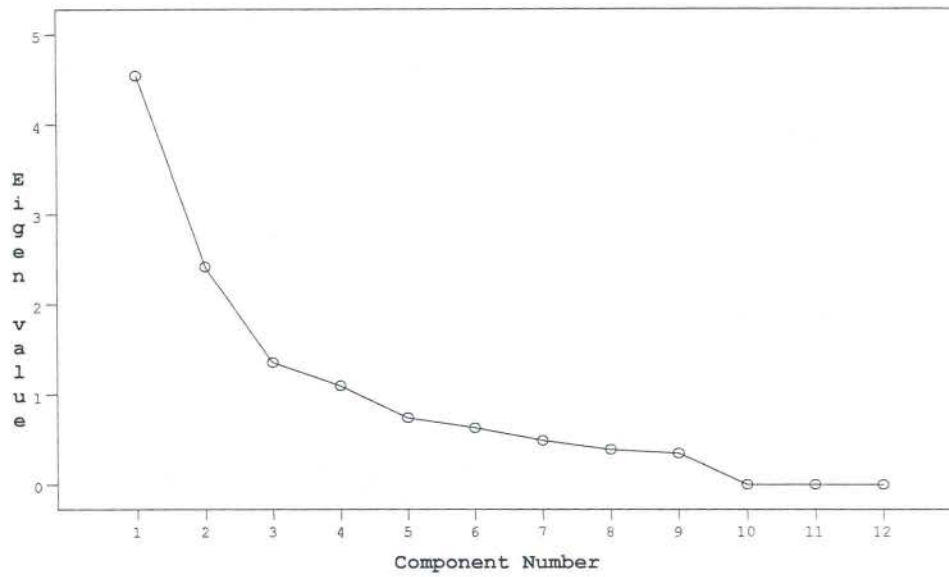
From the above reliability and exploratory factor analysis, we have been able to see that the results reveal a structure and characteristics in this main study instrument that follows or that is some how consistent with those found by Ramsden, (1991) and Wilson et al., (1997). Therefore, the instrument is reliable to be used as an educational evaluation instrument. In the subsequent chapters, we shall be analyzing various relationships and variations between the sub-scales and scales or dimensions of quality across several variables as postulated in the research questions.

CHAPTER SEVEN
ANALYSIS AND PRESENTATION OF RESULTS

Variational Criterion:

7.1 Introduction

Having established the basic structural soundness of the main study instrument, the next step we want to take is to run analysis at different levels of aggregation in order to examine the extent to which it revealed differences in perceived in student's evaluation of the quality of aspects of their courses and learning environment viz-a-viz teaching and learning. Therefore, series of analysis of variance were conducted to test the degree of variation in student's perception of the quality of aspects of their course of study across different comparative groups. We call this variational criterion because we are looking at the variation of students' perceptions of the aspects of their courses of study across different comparative groupings. The comparative groups considered are:

1. Types of university = unitype (federal universities, state universities and private universities)

2. Gender = (male and female)

3. Level of studies = study level; that is the class level in which the student is at the time of the administration of the main study questionnaire (1st level, 2nd level, 3rd level and final year level)

4. Course of study = course study (which has been categorized in to chemical sciences, biological sciences, computer sciences, mathematical sciences and "others")

5. University generation = unigen (1st generation, 2nd generation, 3rd generation, 4th generation and 5th generation).

In this chapter therefore, section 7.1 sets in the introduction, section 7.2 explains the sub-scale variations, where variations of each sub-scale across the five variables (university type, gender, level of study, course study and university generations) is being explored. Section 7.3 explains the scale

variations, where variations of each of the scales or dimensions of quality proposed in this study across the five variables above are also explored.

7.2 Sub-scale Variations

This sub section is going to basically lookor respond to the research question below:

2. Are there variations in the perceived quality of clear goals, course level resource materials and facilities, good teaching, appropriate workload, appropriate assessment, emphasis on independence and learning strategy (surface and deep) and generic skills,

- Across types of universities
- Across gender
- Across level of study
- Across main courses of study
- Across generation of universities

In order to give answer to this research question, we computed the analysis of variance (anova) and descriptive analysis of each of the sub-scales mentioned in the question above across each of the five variables mentioned in the question above.

7.2.1 Variations Across University Types:

The first level of aggregation in which we want to examine differences in, is the Nigerian types of universities. There are basically three types of universities in Nigeria. Universities owned by the federal government, which is commonly called the federal universities, those owned by the state government commonly called the state universities and those owned by non-governmental bodies such as individuals and missionary groups e.t.c commonly called the private universities.

Generally, there exist significant differences in the student's perceptions of the quality of all aspects of their courses across all the university types. For the efficiency of these variations, we tried to vary the sample sizes from full to 20%, to 10% and sometimes to 50% of the sample. This is done to examine the consistency of our results despite the change in the sample size.

The analysis of variance (ANOVA) for the full, 20% and 10% of the observations revealed that there exist significant (0.05level) differences in the student's perception of clear goals between the private and federal (mean diff. = 3.80) and also between the state and the federal universities (mean diff. = 3.49); with the difference being greater between the private and the federal

universities (mean diff. = 3.80). Difference in the perception of clear goals is not significantly evident between the state and the private universities.

Looking at the positive mean differences and also the high mean value (24.18), it is evident that students from the private universities tend to perceive the clarity of goals in their courses better than those from both the state and federal universities. See table 7.1a (i) and 7.1a (ii) below for more details;

Table 7.1a (i) : Descriptive Statistics for Clear Goals Across University Type

Clear Goals

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	24,1833	2,97158	,18756	23,8139	24,5527	14,00	30,00
State university	761	23,8804	4,20653	,15249	23,5811	24,1798	8,00	30,00
Federal university	1209	20,3830	3,81610	,10975	20,1676	20,5983	9,00	30,00
Total	2221	22,0108	4,26043	,09040	21,8335	22,1881	8,00	30,00

Table 7.1 a(ii): Multiple Comparisons of Clear Goals Across University Type

Dependent Variable: Clear Goals
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	,30285	,28181	,561	-,3874	,9931
	Federal university	3,80031(*)	,26855	,000	3,1425	4,4581
State university	Private university	-,30285	,28181	,561	-,9931	,3874
	Federal university	3,49746(*)	,17915	,000	3,0586	3,9363
Federal university	Private university	-3,80031(*)	,26855	,000	-4,4581	-3,1425
	State university	-3,49746(*)	,17915	,000	-3,9363	-3,0586

* The mean difference is significant at the .05 level.

In a similar vein, considering the full, 20% and 10% sample of the data; there exist significant (0.05 level) differences between both the federal, state and private universities in the student's perception of their course level resources and facilities. There exist significant positive difference between private and

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state universities (mean diff. = 5.43), between private and federal universities (mean diff. = 6.85) and finally between state and federal universities (mean diff. = 1.41).

The difference in the student's perception of course level resources and facilities is greater between private and federal universities (mean diff. = 6.85).

Based on the high positive mean value, suffices to say that students from the private universities (mean = 34.43), perceived the provision of course level resources and facilities better than those of both the federal and state universities. See details in Table 7.1b (i) and 7.1b (ii) below:

Table 7.1b (i): Descriptive Statistics for Course Level Resources Across University Type

Course Level Resources

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	34,4343	3,02897	,19119	34,0577	34,8108	14,00	46,00
State university	761	28,9961	8,09361	,29339	28,4201	29,5720	10,00	49,00
Federal university	1209	27,5840	6,03602	,17360	27,2434	27,9245	10,00	48,00
Total	2221	28,8420	6,90579	,14653	28,5546	29,1293	10,00	49,00

Table 7.1b(ii): Multiple Comparisons of Course Level Resource Materials Across University Type

Dependent Variable: Course Level Resources
Scheff

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	5,43821(*)	,47909	,000	4,2647	6,6117
	Federal university	6,85031(*)	,45655	,000	5,7320	7,9686
State university	Private university	-5,43821(*)	,47909	,000	-6,6117	-4,2647

	Federal university	1,41210(*)	,30457	,000	,6661	2,1581
Federal university	Private university	-6,85031(*)	,45655	,000	-7,9686	-5,7320
	State university	-1,41210(*)	,30457	,000	-2,1581	-,6661

The mean difference is significant at the .05 level.

In the case of good teaching, analysis of the full, 20% and 10% of the sample revealed that significant differences (0.005level) occurred between private universities and the federal universities (mean diff. =8.83). The same pattern of significant differences is revealed between the state universities and the federal universities (mean diff = 7.86).

The difference in student's perception of good teaching across university type is higher between private and federal universities (mean diff. = 8.83). There exist no significant differences between private universities and the state universities.

The analysis further revealed that students from the private universities perceived the aspect of good teaching higher and better than those from both the state and the federal universities. This was revealed by the higher positive value of the mean of private universities (39.62). See details in table 7.1c(i) and 7.1c (ii) below:

Table 7.1c(i): Descriptive Statistics for Good Teaching Across University Type

Good Teaching

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	39,6295	4,76006	,30045	39,0377	40,2212	22,00	50,00
State university	761	38,6570	7,00972	,25410	38,1582	39,1559	15,00	50,00
Federal university	1209	30,7924	6,50299	,18702	30,4255	31,1593	14,00	50,00
Total	2221	34,4858	7,66608	,16267	34,1668	34,8048	14,00	50,00

Table 7.1c(ii): Multiple Comparisons of Good Teaching Across University Type

Dependent Variable: Good teaching
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	,97245	,47409	,122	-,1888	2,1337
	Federal university	8,83709(*)	,45178	,000	7,7305	9,9437
State university	Private university	-,97245	,47409	,122	-2,1337	,1888
	Federal university	7,86464(*)	,30139	,000	7,1264	8,6029
Federal university	Private university	-8,83709(*)	,45178	,000	-9,9437	-7,7305
	State university	-7,86464(*)	,30139	,000	-8,6029	-7,1264

* The mean difference is significant at the .05 level.

Looking at table 7.1(d) below, it is crystal clear that there exist no significant differences in the student's perception of Emphasis on independence in their learning. Full analysis of the sample revealed no differences at all. This implies that students in all the three types of universities perceived almost the same way with regards emphasis on independence in their various courses. Further investigations needs to be made to find out reasons behind this uniformity of perception on independence across all types of universities in Nigeria.

Table 7.1(d): Multiple Comparisons of Emphasis on Independence Across University Type

Dependent Variable: Emphasis on Independence
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	-,21322	,24703	,689	-,8183	,3918
	Federal university	-,28287	,23540	,486	-,8595	,2937
State university	Private university	,21322	,24703	,689	-,3918	,8183
	Federal university	-,06965	,15704	,906	-,4543	,3150
Federal university	Private university	,28287	,23540	,486	-,2937	,8595
	State university	,06965	,15704	,906	-,3150	,4543

On the other, there exist significant visible differences in the student's perception of appropriate work load in their courses across the three types of

universities in Nigeria. There exist significant difference (0.05 levels) between private and state universities (mean diff. = 2.04), between private and state universities (mean diff. = 3.66) and finally between state and federal universities (mean diff. = 1.62).

The difference in student's perception with regards appropriate workload across university types is higher between private and state universities. Students from the private universities (mean =16.91) tend to have a better perception of having an appropriate workload in comparison to both the state and federal universities. This is also revealed by the positive values of the mean difference. See details in tables 7.1e (i) and 7.1e (ii) below:

Table 7.1e (i): Descriptive Statistics for Appropriate Workload Across University Type

Appropriate Workload

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	16,9163	2,58553	,16320	16,5949	17,2378	9,00	22,00
State university	761	14,8752	4,34092	,15736	14,5663	15,1841	5,00	25,00
Federal university	1209	13,2465	3,66731	,10547	13,0396	13,4534	5,00	23,00
Total	2221	14,2193	4,00091	,08490	14,0528	14,3858	5,00	25,00

Table 7.1e(ii): Multiple Comparisons of Appropriate Workload Across University Type

Dependent Variable: Appropriate workload
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	2,04117(*)	,27750	,000	1,3614	2,7209
	Federal university	3,66985(*)	,26445	,000	3,0221	4,3176
State university	Private university	-2,04117(*)	,27750	,000	-2,7209	-1,3614
	Federal university	1,62868(*)	,17642	,000	1,1966	2,0608
Federal university	Private university	-3,66985(*)	,26445	,000	-4,3176	-3,0221
	State university	-1,62868(*)	,17642	,000	-2,0608	-1,1966

The mean difference is significant at the .05 level.

Similarly, there exist strong significant differences of student's perception of appropriate assessment across the three types of universities in Nigeria. Differences in student's perceptions of appropriate assessment occurred between state and private universities (mean diff = 3.14), between federal and private universities (mean diff. = 5.23) and finally between federal and state universities (mean diff. = 1.81).

Differences in student's perception with regards appropriate assessment across university types is greater between the federal and private universities (mean diff. = 5.23). Based on the high mean value (16.81), it is evident that students from the federal universities have a better perception of appropriate assessment than students from both private and state universities. This was also evident from the positive values of the mean difference. See tables 7.1f (i) and 7.1f (ii) below for more details:

Table 7.1f(i): Descriptive Statistics for Appropriate Assessment Across University Type

Appropriate Assessment

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	11,5777	2,91838	,18421	11,2149	11,9405	5,00	25,00
State university	761	14,9974	4,31399	,15638	14,6904	15,3044	5,00	25,00
Federal university	1209	16,8164	3,52325	,10133	16,6176	17,0152	5,00	25,00
Total	2221	15,6011	4,10419	,08709	15,4303	15,7719	5,00	25,00

Table 7.1f(ii): Multiple Comparisons of appropriate assessment Across university type

Dependent Variable: Appropriate assessment
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	-3,41968(*)	,27330	,000	-4,0891	-2,7503
	Federal university	-5,23869(*)	,26043	,000	-5,8766	-4,6008
State university	Private university	3,41968(*)	,27330	,000	2,7503	4,0891
	Federal university	-1,81901(*)	,17374	,000	-2,2446	-1,3934
Federal university	Private university	5,23869(*)	,26043	,000	4,6008	5,8766
	State university	1,81901(*)	,17374	,000	1,3934	2,2446

* The mean difference is significant at the .05 level.

The differences in the student's perception of their learning methods are also evident across the three types of universities in Nigeria. While significant differences are found between private and state universities (mean diff. = 0.91), between federal and private universities (mean diff. = 3.11) and also between federal and state universities (mean diff. = 2.20) in the student's perception of a surface approach to learning; only differences between the state and the private universities (mean diff. = 1.35) and between the state and the federal universities (mean diff. = 1.74) are found significant in the student's perception of deep learning approach. No significant differences were recorded between the private and federal universities in the adoption of a deep learning strategy. The Students from the federal universities (mean = 12.49) seems to perceive highly, the adoption of surface learning strategies in their courses than the students from either private or federal universities. Also, the students from the state universities (mean = 16.49) tend to perceive the adoption of deep learning strategies more appropriately than those from the private and federal universities. This observation was made evident by the positive values of the mean differences displayed in tables 7.1g (i) and 7.1g (ii) and also tables 7.1h (i) and 7.1h (ii) below:

Table 7.1g(i) Descriptive Statistics for Surface Learning Strategy Across University Type

Surface Learning

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	9,3825	3,11723	,19676	8,9950	9,7700	4,00	20,00
State university	761	10,2930	4,32886	,15692	9,9850	10,6011	4,00	20,00
Federal university	1209	12,4996	3,23657	,09308	12,3170	12,6822	4,00	20,00
Total	2221	11,3913	3,84034	,08149	11,2315	11,5511	4,00	20,00

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Table 7.1g (ii) Multiple Comparisons of surface learning Across university type

Dependent Variable: Surface Learning
Scheffe

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	15,1315	2,22231	,14027	14,8552	15,4077	11,00	20,00
State university	761	16,4915	2,56910	,09313	16,3086	16,6743	4,00	20,00
Federal university	1209	14,7452	3,07811	,08853	14,5716	14,9189	4,00	20,00
Total	2221	15,3872	2,93618	,06230	15,2650	15,5094	4,00	20,00

The mean difference is significant at the .05 level.

Table 7.1h(i): Descriptive Statistics for Deep Learning Strategy Across University Type

Deep Learning

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	-,91057(*)	,26467	,003	-1,5588	-,2623
	Federal university	-3,11712(*)	,25221	,000	-3,7349	-2,4993
State university	Private university	,91057(*)	,26467	,003	,2623	1,5588
	Federal university	-2,20655(*)	,16825	,000	-2,6187	-1,7944
Federal university	Private university	3,11712(*)	,25221	,000	2,4993	3,7349
	State university	2,20655(*)	,16825	,000	1,7944	2,6187

Table 7.1h(ii): Multiple Comparisons of deep learning Across university type

Dependent Variable: Deep learning
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	-1,35998(*)	,20560	,000	-1,8636	-,8564
	Federal university	,38623	,19592	,144	-,0937	,8661

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State university	Private university	1,35998(*)	,20560	,000	,8564	1,8636
	Federal university	1,74621(*)	,13070	,000	1,4261	2,0664
Federal university	Private university	-,38623	,19592	,144	-,8661	,0937
	State university	-1,74621(*)	,13070	,000	-2,0664	-1,4261

The mean difference is significant at the .05 level.

Finally, there exists a strong significant difference in the student's perception of general skills across university type. Differences were significant between the private and federal universities (mean diff. = 2.92) and also between the state and federal universities in Nigeria (mean diff. = 3.33). The difference in student's perception of generic skills is greater between the state and federal universities (mean diff. = 3.33). Going by the high mean value of (21.18), we tend to believe that students from the state universities perceived higher, the generic skills they acquired as a result of their courses than those from both private and federal universities. See tables 7.1I (i) and 7.1I (ii) below for details:

Table 7.1I(i) Descriptive Statistics for Generic Skills Across University Type

Generic Skills

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	20,7809	2,50675	,15822	20,4693	21,0925	10,00	25,00
State university	761	21,1840	2,93398	,10636	20,9752	21,3928	5,00	25,00
Federal university	1209	17,8536	4,59962	,13228	17,5941	18,1131	5,00	25,00
Total	2221	19,3255	4,21546	,08945	19,1501	19,5009	5,00	25,00

Table 7.1I(ii): Multiple Comparisons of generic skills Across university type

Dependent Variable: Generic skills
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	-,40309	,28360	,364	-1,0977	,2916
	Federal university	2,92728(*)	,27025	,000	2,2653	3,5892
State university	Private university	,40309	,28360	,364	-,2916	1,0977

	Federal university	3,33037(*)	,18029	,000	2,8888	3,7720
Federal university	Private university	-2,92728(*)	,27025	,000	-3,5892	-2,2653
	State university	-3,33037(*)	,18029	,000	-3,7720	-2,8888

The mean difference is significant at the .05 level.

7.2.2 Variations Across Gender

The second level of aggregation in which we want to examine differences in, is the variation across gender. We want to see if there exist variations between males and females perception of aspects of their courses. There were no significant differences found across gender in most of the sub-scales of the main study instrument. This implies that in the sub-scales where gender differences were not found, both male and female student's perceptions of those aspects of their courses are the same. Gender differences in student's perception exist only in the appropriate assessment and surface learning sub-scales. Male students tend to perceive the provision of appropriate assessment better than the female students and this was revealed by the high value of the mean (15.84) of appropriate assessment sub-scale for men. See details in tables 7.2a(i) and 7.2a(ii) below:

Table 7.2a(i): ANOVA for Appropriate Assessment Across Gender

Appropriate Assessment

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	238,471	1	238,471	14,242	,000
Within Groups	37156,086	2219	16,745		
Total	37394,557	2220			

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Table 7.2a(ii): Descriptive Statistics for Appropriate Assessment Across Gender

Appropriate Assessment

Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Male	1420	15,8472	4,09023	,10854	15,6343	16,0601	5,00	25,00
Female	801	15,1648	4,09516	,14470	14,8808	15,4488	5,00	25,00
Total	2221	15,6011	4,10419	,08709	15,4303	15,7719	5,00	25,00

Similarly, there exists a significant (0.05 level) difference in the student's perception of adoption of surface learning strategy in their courses. Furthermore, male students perceived the adoption of surface learning approach better than the female student. This is revealed by the high mean value (11.63) of the surface learning sub-scale for the males. See tables 7.2b(i) and 7.2b(ii) below:

Table 7.2b(i): ANOVA for Surface Learning Across Gender

Surface Learning

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	235,665	1	235,665	16,088	,000
Within Groups	32505,325	2219	14,649		
Total	32740,991	2220			

Table 7.2b(ii): Descriptive Statistics for Surface Learning Across Gender

Surface Learning

Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Male	1420	11,6359	3,83989	,10190	11,4360	11,8358	4,00	20,00
Female	801	10,9576	3,80502	,13444	10,6936	11,2215	4,00	20,00
Total	2221	11,3913	3,84034	,08149	11,2315	11,5511	4,00	20,00

7.2.3 Variations Across Levels of Study

The third level of aggregation in which we want to examine differences in, is the variation across levels of study. Most Nigerian universities, whether private, state or federal university runs four years degree courses in faculty of sciences. This means that for each degree course in the faculty of sciences, there are four levels to go through before one will be awarded the degree of Bachelor of Science. These levels are categorized as follows:
1st level – students in the first level (year) of study
2nd level – students in the second level (year) of study
3rd level - students in the third level (year) of study
4th level – student in the fourth level of study, (which is usually the final or last level of study before graduation).

For some universities there is a 5th level, in order to be consistent with our study, we considered those ones as final year students along side with those universities that operates four levels. We want to compare and see if there are variations of student's perceptions of the aspects of their courses based on their levels of studies.

There exists a strong significant difference (0.05 levels) of student's perception of adoption of surface learning strategy and deep learning strategy across levels of study. For the student's perception of adoption of surface learning strategy, the differences are significant between 1st level students and third level students (mean diff. = 1.23), between first level students and final level students (mean diff. = 1.33), between second level students and third level students (mean diff. = 0.65) and finally between second level students and final level students (mean diff. = 0.75).

Greatest significant difference of the student's perception with regards surface learning strategy across the four levels of study is found between the

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1st level and the final level of study (mean diff.=1.33). Evident from the high mean value (12.34) the students in the first level of studies tend to adapt to surface learning strategies better than students in the other levels of study. See tables 7.3a (i) and 7.3a (ii) below for more details:

Table 7.3a (i): Descriptive Statistics for Surface Learning Strategy Across Level of Study

Surface Learning

Level of study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
First year student	323	12,3437	3,73786	,20798	11,9345	12,7528	4,00	20,00
Second year student	454	11,7665	3,77901	,17736	11,4180	12,1151	4,00	20,00
Third year student	710	11,1127	3,68640	,13835	10,8411	11,3843	4,00	20,00
Final year student	734	11,0095	3,98136	,14695	10,7210	11,2980	4,00	20,00
Total	2221	11,3913	3,84034	,08149	11,2315	11,5511	4,00	20,00

Table 7.3a(ii) Multiple Comparisons for surface learning strategy Across level of study

Dependent Variable: Surface learning strategy
Scheffe

(I) Indicate level of study	(J) Indicate level of study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
First year student	Second year student	,57713	,27751	,229	-,1992	1,3535
	Third year student	1,23098(*)	,25587	,000	,5152	1,9468
	Final year student	1,33412(*)	,25456	,000	,6220	2,0463
Second year student	First year student	-,57713	,27751	,229	-1,3535	,1992
	Third year student	,65384(*)	,22909	,043	,0129	1,2948
	Final year student	,75698(*)	,22763	,012	,1202	1,3938
Third year student	First year student	-1,23098(*)	,25587	,000	-1,9468	-,5152
	Second year student	-,65384(*)	,22909	,043	-1,2948	-,0129
	Final year student	,10314	,20068	,967	-,4583	,6646
Final year student	First year student	-1,33412(*)	,25456	,000	-2,0463	-,6220
	Second year student	-,75698(*)	,22763	,012	-1,3938	-,1202
	Third year student	-,10314	,20068	,967	-,6646	,4583

* The mean difference is significant at the .05 level.

In the other hand, for the student's perception of adoption of deep learning strategy, there exist significant differences (0.05 levels) between the 3rd level and the 1st level students (mean diff. = 0.70), the 3rd level and the 2nd level students (mean diff. = 0.50), between the final level and the 1st level students (mean diff. = 0.76) and between the final and 2nd level student (mean diff. = 0.57). Based on the high mean value (), students in the final level of study seem to adapt to the deep learning strategy than those in the other levels of study. See tables 7.3b (i) and 7.3b (ii) below for more details:

Table 7.3b (i) Descriptive Statistics for Deep Learning Strategy Across Level of Study

Deep Learning

Level of study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
First year student	323	14,8669	3,17075	,17643	14,5198	15,2140	4,00	20,00
Second year student	454	15,0661	2,96708	,13925	14,7924	15,3397	4,00	20,00
Third year student	710	15,5718	2,80183	,10515	15,3654	15,7783	4,00	20,00
Final year student	734	15,6362	2,89514	,10686	15,4264	15,8460	4,00	20,00
Total	2221	15,3872	2,93618	,06230	15,2650	15,5094	4,00	20,00

Table 7.3b(ii) Multiple Comparisons for Deep Learning Strategy Across Level of Study

Dependent Variable: Deep learning strategy
Scheffe

(I) Indicate level of study	(J) Indicate level of study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
First year student	Second year student	-,19921	,21273	,831	-,7944	,3959
	Third year student	-,70496(*)	,19614	,005	-1,2537	-,1562
	Final year student	-,76937(*)	,19514	,001	-1,3153	-,2234
Second year student	First year student	,19921	,21273	,831	-,3959	,7944
	Third year student	-,50575(*)	,17562	,041	-,9971	-,0144
	Final year student	-,57016(*)	,17449	,014	-1,0583	-,0820
Third year student	First year student	,70496(*)	,19614	,005	,1562	1,2537
	Second year student	,50575(*)	,17562	,041	,0144	,9971
	Final year student	-,06441	,15384	,981	-,4948	,3660
Final year student	First year student	,76937(*)	,19514	,001	,2234	1,3153
	Second year student	,57016(*)	,17449	,014	,0820	1,0583
	Third year student	,06441	,15384	,981	-,3660	,4948

The mean difference is significant at the .05 level.

There exists a borderline significant difference (0.05 levels) in the student's perception of clear goals, good teaching, appropriate workload and generic skills across levels of study. We call it borderline significance because the significance was consistent when full and 50% of the sample data were analyzed but were not so when 20% and 10% of the sample data were analyzed.

For the student's perception of clear goals in their courses, there exist a border line significant differences between 3rd level and 1st level of students (mean difference=1.43), 3rd level and 2nd level students (mean diff. = 0.75), final level and 1st level student (mean diff. = 1.50) and between the final level and second level students (mean diff. = 0.82). The difference in student's perception of clear goals across the levels of study is greater between final level and 1st level students (mean diff. = 1.50). With reference to the high mean value (22.42), it is evident that students in the final level of study tend to perceive clear goals better than students in the other levels. See tables 7.3c (i) and 7.3c (ii) below for more details:

Table 7.3c (i): Descriptive Statistics for Clear Goals Across Level of Study

Clear Goals

Level of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
First year student	323	20,9133	4,28038	,23817	20,4448	21,3819	9,00	30,00
Second year student	454	21,5925	3,87658	,18194	21,2350	21,9501	9,00	30,00
Third year student	710	22,3521	4,23565	,15896	22,0400	22,6642	8,00	30,00
Final year student	734	22,4223	4,40034	,16242	22,1035	22,7412	8,00	30,00
Total	2221	22,0108	4,26043	,09040	21,8335	22,1881	8,00	30,00

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Table 7.3c (ii) Multiple Comparisons for clear goals Across level of study

Dependent Variable: Clear goals
Scheffe

(I) Indicate level of study	(J) Indicate level of study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
First year student	Second year student	-,67920	,30772	,182	-1,5401	,1817
	Third year student	-1,43880(*)	,28372	,000	-2,2326	-,6450
	Final year student	-1,50903(*)	,28227	,000	-2,2987	-,7193
Second year student	First year student	,67920	,30772	,182	-,1817	1,5401
	Third year student	-,75960(*)	,25404	,030	-1,4703	-,0489
	Final year student	-,82983(*)	,25241	,013	-1,5360	-,1237
Third year student	First year student	1,43880(*)	,28372	,000	,6450	2,2326
	Second year student	,75960(*)	,25404	,030	,0489	1,4703
	Final year student	-,07023	,22253	,992	-,6928	,5523
Final year student	First year student	1,50903(*)	,28227	,000	,7193	2,2987
	Second year student	,82983(*)	,25241	,013	,1237	1,5360
	Third year student	,07023	,22253	,992	-,5523	,6928

* The mean difference is significant at the .05 level.

Student's perception of good teaching has a borderline significance (0.05 level) between 3rd level and 1st level students (mean diff. = 1.57), between the final level and the 1st level students (mean diff. = 2.34) and between final level and 2nd level students (mean diff. = 1.69). The difference in student's evaluation of good teaching across the levels of study is greater between final level students and 2nd level students. From the values of mean (35.42), it became crystal clear that students in the final level of study tend to perceive good teaching better than students from all the remaining levels of study. See tables 7.3d (i) and 7.3d (ii) below for more details:

Table 7.3d (i): Descriptive Statistics for Good Teaching Across Level of Study

Good Teaching

Level of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
First year student	323	33,0743	7,05617	,39262	32,3019	33,8467	15,00	50,00
Second year student	454	33,7269	6,89885	,32378	33,0906	34,3632	16,00	50,00
Third year student	710	34,6465	7,99985	,30023	34,0570	35,2359	14,00	50,00
Final year student	734	35,4210	7,91625	,29219	34,8473	35,9946	15,00	50,00
Total	2221	34,4858	7,66608	,16267	34,1668	34,8048	14,00	50,00

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Table 7.3d(ii): Multiple Comparisons of Good Teaching Across Levels of Study

Dependent Variable: Good teaching
Scheffe

(I) Indicate level of study	(J) Indicate level of study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
First year student	Second year student	-,65257	,55504	,710	-2,2054	,9002
	Third year student	-1,57218(*)	,51176	,024	-3,0039	-,1405
	Final year student	-2,34668(*)	,50914	,000	-3,7711	-,9223
Second year student	First year student	,65257	,55504	,710	-,9002	2,2054
	Third year student	-,91961	,45821	,259	-2,2015	,3623
	Final year student	-1,69411(*)	,45528	,003	-2,9678	-,4204
Third year student	First year student	1,57218(*)	,51176	,024	,1405	3,0039
	Second year student	,91961	,45821	,259	-,3623	2,2015
	Final year student	-,77450	,40138	,293	-1,8974	,3484
Final year student	First year student	2,34668(*)	,50914	,000	,9223	3,7711
	Second year student	1,69411(*)	,45528	,003	,4204	2,9678
	Third year student	,77450	,40138	,293	-,3484	1,8974

The mean difference is significant at the .05 level.

As per appropriate work load, borderline differences were found (0.05 level) between final level and 1st level students (mean diff. = 0.80) and also between final level and 2nd level students (mean diff. = 1.00). With the greatest difference between final level students and 2nd level students, we can see that the mean value (14.69) for the final level students is high; hence the final level students tend to perceive an appropriate workload better than students of the other remaining levels. See tables 7.3e (i) and 7.3e (ii) below for more details:

Table 7.3e (i): Descriptive Statistics for Appropriate Workload Across Level of Study

Appropriate Workload

Level of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
First year student	323	13,8885	3,43348	,19104	13,5127	14,2644	6,00	23,00
Second year student	454	13,6938	3,76121	,17652	13,3469	14,0407	5,00	22,00
Third year student	710	14,2113	4,14040	,15539	13,9062	14,5163	5,00	25,00
Final year student	734	14,6975	4,18678	,15454	14,3942	15,0009	5,00	25,00
Total	2221	14,2193	4,00091	,08490	14,0528	14,3858	5,00	25,00

Table 7.3e (ii) Multiple Comparisons for Appropriate Workload Across Level of Study

Dependent Variable: Appropriate workload
Scheffe

(I) Indicate level of study	(J) Indicate level of study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
First year student	Second year student	,19471	,29008	,930	-,6168	1,0062
	Third year student	-,32272	,26746	,693	-1,0710	,4255
	Final year student	-,80900(*)	,26609	,026	-1,5534	-,0646
Second year student	First year student	-,19471	,29008	,930	-1,0062	,6168
	Third year student	-,51744	,23947	,198	-1,1874	,1525
	Final year student	-1,00372(*)	,23794	,001	-1,6694	-,3380
Third year student	First year student	,32272	,26746	,693	-,4255	1,0710
	Second year student	,51744	,23947	,198	-,1525	1,1874
	Final year student	-,48628	,20977	,147	-1,0731	,1006
Final year student	First year student	,80900(*)	,26609	,026	,0646	1,5534
	Second year student	1,00372(*)	,23794	,001	,3380	1,6694
	Third year student	,48628	,20977	,147	-,1006	1,0731

* The *mean difference is significant at the .05 level.*

Finally on the perception of acquisition of generic skills, there appears to be a borderline significance also between the final level and 1st level student (mean diff. = 1.19) and also between final level and 2nd level student (mean diff. = 0.99). with the difference being greater between final level and 1st level students, it is clear even from the view of the mean value (19.87) to believe that the final level students tend to perceive a better acquisition of generic skills than those students from the other remaining levels of study. Tables 7.3f (i) and 7.3f (ii) below shows the details:

7.3f (i): Descriptive Statistics for Generic Skills Across Level of Study

Generic Skills

Level of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
First year student	323	18,6780	4,16153	,23155	18,2225	19,1336	5,00	25,00
Second year student	454	18,8789	4,19038	,19666	18,4924	19,2653	5,00	25,00
Third year student	710	19,3423	4,33567	,16271	19,0228	19,6617	5,00	25,00
Final year student	734	19,8706	4,07078	,15026	19,5756	20,1656	5,00	25,00
Total	2221	19,3255	4,21546	,08945	19,1501	19,5009	5,00	25,00

Table 7.3f (ii): Multiple Comparisons for Generic skills Across level of study

Dependent Variable: Generic skills
Scheffe

(I) Indicate level of study	(J) Indicate level of study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
First year student	Second year student	-,20084	,30532	,933	-1,0550	,6533
	Third year student	-,66423	,28151	,135	-1,4518	,1233
	Final year student	-1,19255(*)	,28007	,000	-1,9761	-,4090
Second year student	First year student	,20084	,30532	,933	-,6533	1,0550
	Third year student	-,46340	,25206	,337	-1,1686	,2418
	Final year student	-,99172(*)	,25044	,001	-1,6924	-,2911
Third year student	First year student	,66423	,28151	,135	-,1233	1,4518
	Second year student	,46340	,25206	,337	-,2418	1,1686
	Final year student	-,52832	,22079	,126	-1,1460	,0894
Final year student	First year student	1,19255(*)	,28007	,000	,4090	1,9761
	Second year student	,99172(*)	,25044	,001	,2911	1,6924
	Third year student	,52832	,22079	,126	-,0894	1,1460

* The mean difference is significant at the .05 level.

There exists no significant difference of student's perception of course level resources, emphasis on independence, and appropriate assessment across level of study. The underlying factors resulting in to the situation of no variations in the above variables across level of study needs to be further investigated in future research.

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7.2.4 Variations Across Courses of Study

The fourth level of aggregation in which we want to examine differences in, is the variation across courses of study. This study covered 13 departments in the faculty of sciences. These 13 departments are further categorized in to five main course of study depending on their natural background as follows:

    a. Chemical Sciences, consisting of Chemistry, Biochemistry and Geology

    b. Biological Sciences, consisting of Biology, Micro-biology, Botany and Zoology

    c. Computer Sciences, consisting of Computer Science and Information Technology

    d. Mathematical Sciences, consisting of Mathematics and Statistics, Operational Research and Physics

    e. Others (is a course category we use to denote responses from students from departments other than the departments within faculty of sciences.

Our desire is to investigate if there are variations in student's perception of the aspects of quality of their courses across these five main courses of study. There exist borderline differences in the student's perception of clear goals, course level resources and facilities, good teaching, appropriate workload, appropriate assessment, surface learning strategy and generic skills.

These differences in the student's perception with regards clear goals exist between chemical science and mathematical sciences (mean diff. = 0.75), between biological sciences and mathematical sciences (mean diff. = 1.12) and between computer sciences and mathematical sciences (mean diff. = 1.07).

The difference in the perception of clear goals is greater between biological sciences and mathematical sciences (1.12). Also considering the mean, it is obvious that students of biological sciences (mean = 22.45) perceived clearly the goals of their courses better than students from the remaining four categories of course of study. See tables 7.4a (i) and 7.4a (ii) below for more details:

Table 7.4a (i): Descriptive Statistics for Clear Goals Across Course Study

Clear Goals

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	22,0852	4,05757	,14689	21,7968	22,3736	10,00	30,00
Biological Sciences	526	22,4544	4,21164	,18364	22,0936	22,8151	9,00	30,00
Computer Sciences	334	22,4102	4,68427	,25631	21,9060	22,9144	8,00	30,00
Mathematical Sciences	569	21,3304	4,27445	,17919	20,9784	21,6824	8,00	30,00
others	29	20,7586	3,18092	,59068	19,5487	21,9686	14,00	28,00
Total	2221	22,0108	4,26043	,09040	21,8335	22,1881	8,00	30,00

Table 7.4a(ii): Multiple Comparisons for Clear Goals Across Course Study

Dependent Variable: Clear goals
Scheffe

(I) course study	(J) course study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	-,36918	,24025	,670	-1,1098	,3715
	Computer Sciences	-,32499	,27814	,850	-1,1824	,5325
	Mathematical Sciences	,75479(*)	,23482	,035	,0309	1,4787
	others	1,32657	,80205	,603	-1,1460	3,7991
Biological Sciences	Chemical Sciences	,36918	,24025	,670	-,3715	1,1098
	Computer Sciences	,04419	,29661	1,000	-,8702	,9586
	Mathematical Sciences	1,12397(*)	,25642	,001	,3335	1,9145
	others	1,69575	,80863	,355	-,7971	4,1886
Computer Sciences	Chemical Sciences	,32499	,27814	,850	-,5325	1,1824
	Biological Sciences	-,04419	,29661	1,000	-,9586	,8702
	Mathematical Sciences	1,07978(*)	,29222	,009	,1789	1,9806
	others	1,65156	,82069	,400	-,8785	4,1816
Mathematical Sciences	Chemical Sciences	-,75479(*)	,23482	,035	-1,4787	-,0309
	Biological Sciences	-1,12397(*)	,25642	,001	-1,9145	-,3335
	Computer Sciences	-1,07978(*)	,29222	,009	-1,9806	-,1789
	others	,57178	,80704	,973	-1,9162	3,0597
others	Chemical Sciences	-1,32657	,80205	,603	-3,7991	1,1460
	Biological Sciences	-1,69575	,80863	,355	-4,1886	,7971
	Computer Sciences	-1,65156	,82069	,400	-4,1816	,8785
	Mathematical Sciences	-,57178	,80704	,973	-3,0597	1,9162

* The mean difference is significant at the .05 level.

Considering the student's perception about the course level resources and facilities, there exist also a borderline difference between chemical sciences

and mathematical sciences (mean diff. = 1.21), between "others" and computer sciences (mean diff. = 4.16) and between "others" and mathematical sciences (mean diff. = 4.95). The differences in the student's perception of having enough course level resources and facilities is greater between the course category "others" and mathematical sciences (mean diff. of 4.95).

Looking critically at the mean values (32.96), it is obvious that students from the course category "others" perceived the provision of their course resources and facilities better than students from the remaining five category of courses. See details concerning this in tables 7.4b (i) and 7.4b (ii) below:

Table 7.4b (i): Descriptive Statistics for Course Level Resources Across Course Study

Course Level Resources

Course of study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	29,2267	6,85850	,24829	28,7393	29,7142	10,00	48,00
Biological Sciences	526	28,9829	6,74979	,29430	28,4047	29,5610	12,00	44,00
Computer Sciences	334	28,8054	7,26883	,39773	28,0230	29,5878	12,00	46,00
Mathematical Sciences	569	28,0070	6,85539	,28739	27,4425	28,5715	10,00	45,00
others	29	32,9655	5,36844	,99690	30,9235	35,0076	24,00	49,00
Total	2221	28,8420	6,90579	,14653	28,5546	29,1293	10,00	49,00

Table 7.4b(ii) Multiple Comparisons for Course Level Resources Across Course of Study

Dependent Variable: Course Level Resources
Scheffe

(I) course study	(J) course study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	,24385	,38984	,983	-,9580	1,4457
	Computer Sciences	,42135	,45132	,929	-,9700	1,8127
	Mathematical Sciences	1,21971(*)	,38102	,037	,0451	2,3943
	others	-3,73878	1,30142	,083	-7,7508	,2733
Biological Sciences	Chemical Sciences	-,24385	,38984	,983	-1,4457	,9580
	Computer Sciences	,17750	,48128	,998	-1,3062	1,6612
	Mathematical Sciences	,97586	,41608	,240	-,3068	2,2586
	others	-3,98263	1,31211	,056	-8,0276	,0624
Computer Sciences	Chemical Sciences	-,42135	,45132	,929	-1,8127	,9700
	Biological Sciences	-,17750	,48128	,998	-1,6612	1,3062
	Mathematical Sciences	,79836	,47417	,586	-,6634	2,2601
	others	-4,16013(*)	1,33167	,045	-8,2654	-,0548
Mathematical Sciences	Chemical Sciences	-1,21971(*)	,38102	,037	-2,3943	-,0451
	Biological Sciences	-,97586	,41608	,240	-2,2586	,3068
	Computer Sciences	-,79836	,47417	,586	-2,2601	,6634
	others	-4,95849(*)	1,30952	,006	-8,9955	-,9215
others	Chemical Sciences	3,73878	1,30142	,083	-,2733	7,7508
	Biological Sciences	3,98263	1,31211	,056	-,0624	8,0276
	Computer Sciences	4,16013(*)	1,33167	,045	,0548	8,2654
	Mathematical Sciences	4,95849(*)	1,30952	,006	,9215	8,9955

* The mean difference is significant at the .05 level.

Also with regards good teaching, a borderline difference in the student's perception of good teaching occurred between chemical sciences and mathematical sciences (mean diff. = 1.39) and also between biological sciences and mathematical sciences (mean diff. = 1.99). The difference between biological sciences and mathematical sciences seems to be greater than that between chemical sciences and mathematical sciences. Hence, considering the mean values also, it is evident that students from the biological sciences (mean = 35.29) has a better perception of good teaching than students from the remaining category of course study. See tables 7.4c(i) and 7.4c(ii) below for more details:

Table 7.4c (i): Descriptive Statistics for Good Teaching Across Course Study

Good Teaching

Course Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	34,6946	7,05210	,25530	34,1934	35,1958	15,00	50,00
Biological Sciences	526	35,2947	8,00444	,34901	34,6090	35,9803	14,00	50,00
Computer Sciences	334	34,7904	7,78952	,42622	33,9520	35,6288	17,00	50,00
Mathematical Sciences	569	33,3005	8,02742	,33653	32,6395	33,9615	14,00	50,00
others	29	34,0690	5,71296	1,06087	31,8959	36,2421	19,00	45,00
Total	2221	34,4858	7,66608	,16267	34,1668	34,8048	14,00	50,00

Table 7.4c (ii): Multiple Comparisons for Good Teaching Across course study

Dependent Variable: Good Teaching
Scheffe

(I) course study	(J) course study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	-,60005	,43282	,750	-1,9344	,7343
	Computer Sciences	-,09579	,50108	1,000	-1,6405	1,4489
	Mathematical Sciences	1,39410(*)	,42303	,028	,0900	2,6982
	others	,62566	1,44490	,996	-3,8287	5,0800
Biological Sciences	Chemical Sciences	,60005	,43282	,750	-,7343	1,9344
	Computer Sciences	,50426	,53434	,926	-1,1430	2,1515
	Mathematical Sciences	1,99415(*)	,46195	,001	,5700	3,4183
	others	1,22571	1,45677	,950	-3,2653	5,7167
Computer Sciences	Chemical Sciences	,09579	,50108	1,000	-1,4489	1,6405
	Biological Sciences	-,50426	,53434	,926	-2,1515	1,1430
	Mathematical Sciences	1,48989	,52644	,092	-,1330	3,1128
	others	,72145	1,47849	,993	-3,8365	5,2794
Mathematical Sciences	Chemical Sciences	-1,39410(*)	,42303	,028	-2,6982	-,0900
	Biological Sciences	-1,99415(*)	,46195	,001	-3,4183	-,5700
	Computer Sciences	-1,48989	,52644	,092	-3,1128	,1330
	others	-,76844	1,45389	,991	-5,2505	3,7137
others	Chemical Sciences	-,62566	1,44490	,996	-5,0800	3,8287
	Biological Sciences	-1,22571	1,45677	,950	-5,7167	3,2653
	Computer Sciences	-,72145	1,47849	,993	-5,2794	3,8365
	Mathematical Sciences	,76844	1,45389	,991	-3,7137	5,2505

* The mean difference is significant at the .05 level.

There are no significant differences in the student's perception of Emphasis on Independence and also their perception on the adoption of a deep learning

strategy across course study. Students from all course study categories perceived Emphasis on independence and the adoption of deep learning strategy the same way.

On the other hand, there exist borderline differences on the student's perception of appropriate work load across course study. Differences are seen between biological sciences and mathematical sciences (mean diff. = 0.94) and between computer sciences and mathematical sciences (mean diff. = 0.95). Students from the computer sciences (mean = 14.57) perceived the provision of appropriate workload better than their counterparts from the remaining categories of course study. See tables 7.4d(i) and 7.4d(ii) below for more details:

Table 7.4 d (i): Descriptive Statistics for Appropriate Workload Across Course Study

Appropriate Workload

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	14,2412	4,04334	,14638	13,9538	14,5285	5,00	25,00
Biological Sciences	526	14,5665	4,07388	,17763	14,2176	14,9155	5,00	24,00
Computer Sciences	334	14,5749	3,89410	,21308	14,1557	14,9940	5,00	22,00
Mathematical Sciences	569	13,6186	3,91419	,16409	13,2963	13,9409	5,00	24,00
others	29	15,0345	3,17898	,59032	13,8253	16,2437	8,00	22,00
Total	2221	14,2193	4,00091	,08490	14,0528	14,3858	5,00	25,00

Table 7.4d(ii) Multiple Comparisons for Appropriate Workload Across course study

Dependent Variable: Appropriate workload
Scheffe

(I) course study	(J) course study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	-,32539	,22589	,722	-1,0218	,3710
	Computer Sciences	-,33370	,26151	,804	-1,1399	,4725
	Mathematical Sciences	,62252	,22078	,094	-,0581	1,3031
	others	-,79333	,75409	,893	-3,1180	1,5314
Biological Sciences	Chemical Sciences	,32539	,22589	,722	-,3710	1,0218
	Computer Sciences	-,00831	,27887	1,000	-,8680	,8514
	Mathematical Sciences	,94791(*)	,24109	,004	,2047	1,6911
	others	-,46794	,76028	,984	-2,8118	1,8759

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Computer Sciences	Chemical Sciences	,33370	,26151	,804	-,4725	1,1399
	Biological Sciences	,00831	,27887	1,000	-,8514	,8680
	Mathematical Sciences	,95622(*)	,27475	,017	,1092	1,8032
	others	-,45963	,77162	,986	-2,8384	1,9191
Mathematical Sciences	Chemical Sciences	-,62252	,22078	,094	-1,3031	,0581
	Biological Sciences	-,94791(*)	,24109	,004	-1,6911	-,2047
	Computer Sciences	-,95622(*)	,27475	,017	-1,8032	-,1092
	others	-1,41585	,75878	,481	-3,7550	,9233
others	Chemical Sciences	,79333	,75409	,893	-1,5314	3,1180
	Biological Sciences	,46794	,76028	,984	-1,8759	2,8118
	Computer Sciences	,45963	,77162	,986	-1,9191	2,8384
	Mathematical Sciences	1,41585	,75878	,481	-,9233	3,7550

The mean difference is significant at the .05 level.

Similarly, there exist borderline differences of student's perception of appropriate assessment between the course category "others" and biological sciences (mean diff. = 2.74) and between the course category "others" and computer sciences (mean diff. = 2.83).

From all indication and also from the mean values (17.96), it became evident that students from the course category "others" perceived appropriate assessment better than students from the remaining course categories. See tables 7.4e (i) and 7.4e (ii) below for more details:

Table 7.4e (i): Descriptive Statistics for Appropriate Assessment Across Course Study

Appropriate Assessment

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	15,6999	4,19008	,15169	15,4021	15,9977	5,00	25,00
Biological Sciences	526	15,2224	4,19682	,18299	14,8630	15,5819	5,00	25,00
Computer Sciences	334	15,1317	3,86414	,21144	14,7158	15,5477	6,00	25,00
Mathematical Sciences	569	15,9736	4,00541	,16792	15,6438	16,3034	5,00	25,00
others	29	17,9655	3,20137	,59448	16,7478	19,1833	13,00	24,00
Total	2221	15,6011	4,10419	,08709	15,4303	15,7719	5,00	25,00

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Table 7.4 e(ii) Multiple Comparisons for Appropriate Assessment Across Course Study

Dependent Variable: Appropriate assessment
Scheffe

(I) course study	(J) course study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	,47744	,23156	,373	-,2364	1,1913
	Computer Sciences	,56813	,26808	,344	-,2583	1,3946
	Mathematical Sciences	-,27377	,22632	,833	-,9715	,4239
	others	-2,26565	,77304	,073	-4,6488	,1175
Biological Sciences	Chemical Sciences	-,47744	,23156	,373	-1,1913	,2364
	Computer Sciences	,09070	,28588	,999	-,7906	,9720
	Mathematical Sciences	-,75120	,24715	,056	-1,5131	,0107
	others	-2,74308(*)	,77939	,015	-5,1458	-,3404
Computer Sciences	Chemical Sciences	-,56813	,26808	,344	-1,3946	,2583
	Biological Sciences	-,09070	,28588	,999	-,9720	,7906
	Mathematical Sciences	-,84190	,28165	,063	-1,7102	,0264
	others	-2,83378(*)	,79101	,012	-5,2723	-,3953
Mathematical Sciences	Chemical Sciences	,27377	,22632	,833	-,4239	,9715
	Biological Sciences	,75120	,24715	,056	-,0107	1,5131
	Computer Sciences	,84190	,28165	,063	-,0264	1,7102
	others	-1,99188	,77785	,162	-4,3898	,4061
others	Chemical Sciences	2,26565	,77304	,073	-,1175	4,6488
	Biological Sciences	2,74308(*)	,77939	,015	,3404	5,1458
	Computer Sciences	2,83378(*)	,79101	,012	,3953	5,2723
	Mathematical Sciences	1,99188	,77785	,162	-,4061	4,3898

The mean difference is significant at the .05 level.

With regards the surface learning, there exist borderline differences in the student's perception of adoption of surface learning strategy across course study. These differences are seen between chemical sciences and biological sciences (mean diff. = 1.07), between chemical sciences and computer sciences (mean diff. = 1.01), between the course category "others" and chemical sciences (mean diff. = 2.79), between the course category "others" and biological sciences (mean diff. = 3.87), between the course category "others" and computer sciences (mean diff. = 3.80) and finally between the course category "others" and mathematical sciences (mean diff.= 3.04).

The difference is greater between the course categories "others" and chemical sciences (mean diff. = 3.87). Hence, considering the mean values also, it is clearly seen that students from the course category "others" (mean = 14.62) perceived better the adoption of surface learning strategy than students from the remaining course study categories. See tables 7.4f(i) and 7.4f(ii) below for more details:

Table 7.4f (i): Descriptive Statistics for Surface Learning Across Course Study

Surface Learning

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	11,8270	3,76738	,13639	11,5593	12,0947	4,00	20,00
Biological Sciences	526	10,7471	3,94664	,17208	10,4091	11,0852	4,00	20,00
Computer Sciences	334	10,8114	3,76451	,20598	10,4062	11,2166	4,00	20,00
Mathematical Sciences	569	11,5782	3,77883	,15842	11,2671	11,8894	4,00	20,00
others	29	14,6207	2,07732	,38575	13,8305	15,4109	9,00	18,00
Total	2221	11,3913	3,84034	,08149	11,2315	11,5511	4,00	20,00

Table 7.4f(ii): Multiple Comparisons for Surface Learning Strategy Across Course Study

Dependent Variable: Surface learning
Scheffe

(I) course study	(J) course study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	1,07985(*)	,21517	,000	,4165	1,7432
	Computer Sciences	1,01562(*)	,24910	,002	,2477	1,7835
	Mathematical Sciences	,24879	,21030	,844	-,3995	,8971
	others	-2,79369(*)	,71830	,005	-5,0081	-,5793
Biological Sciences	Chemical Sciences	-1,07985(*)	,21517	,000	-1,7432	-,4165
	Computer Sciences	-,06423	,26564	1,000	-,8831	,7547
	Mathematical Sciences	-,83106(*)	,22965	,011	-1,5390	-,1231
	others	-3,87354(*)	,72420	,000	-6,1061	-1,6410
Computer Sciences	Chemical Sciences	-1,01562(*)	,24910	,002	-1,7835	-,2477
	Biological Sciences	,06423	,26564	1,000	-,7547	,8831
	Mathematical Sciences	-,76683	,26171	,073	-1,5736	,0400
	others	-3,80931(*)	,73500	,000	-6,0752	-1,5434
Mathematical Sciences	Chemical Sciences	-,24879	,21030	,844	-,8971	,3995
	Biological Sciences	,83106(*)	,22965	,011	,1231	1,5390
	Computer Sciences	,76683	,26171	,073	-,0400	1,5736
	others	-3,04248(*)	,72277	,001	-5,2707	-,8143
others	Chemical Sciences	2,79369(*)	,71830	,005	,5793	5,0081
	Biological Sciences	3,87354(*)	,72420	,000	1,6410	6,1061
	Computer Sciences	3,80931(*)	,73500	,000	1,5434	6,0752
	Mathematical Sciences	3,04248(*)	,72277	,001	,8143	5,2707

* The mean difference is significant at the .05 level.

Finally, there exists borderline difference in the student's perception of development of generic skills across the course of study. The difference is found significant (0.05 level) only between biological sciences and mathematical sciences. Based on the mean value (mean =). Students from the biological sciences tend to perceive their development of generic skills better than students from mathematical sciences and the remaining categories of course study. See tables 7.4g(i) and 7.4g(ii) below for more details:

Table 7.4g (i): Descriptive Statistics for Generic Skills Across Course Study

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	19,3106	4,10738	,14870	19,0187	19,6025	6,00	25,00
Biological Sciences	526	19,7776	3,93543	,17159	19,4405	20,1147	5,00	25,00
Computer Sciences	334	19,1886	4,25576	,23286	18,7306	19,6467	6,00	25,00
Mathematical Sciences	569	18,9402	4,56409	,19134	18,5644	19,3161	5,00	25,00
others	29	20,6552	3,53832	,65705	19,3093	22,0011	10,00	25,00
Total	2221	19,3255	4,21546	,08945	19,1501	19,5009	5,00	25,00

Generic Skills

Table 7.4g(ii): Multiple Comparisons for Generic Skills Across course study

Dependent Variable: Generic skills
Scheffe

(I) course study	(J) course study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	-,46695	,23836	,429	-1,2018	,2679
	Computer Sciences	,12199	,27595	,996	-,7287	,9727
	Mathematical Sciences	,37037	,23297	,640	-,3478	1,0886
	others	-1,34456	,79572	,582	-3,7976	1,1085
Biological Sciences	Chemical Sciences	,46695	,23836	,429	-,2679	1,2018
	Computer Sciences	,58894	,29427	,405	-,3182	1,4961
	Mathematical Sciences	,83732(*)	,25440	,029	,0531	1,6216
	others	-,87761	,80226	,879	-3,3508	1,5956
Computer Sciences	Chemical Sciences	-,12199	,27595	,996	-,9727	,7287
	Biological Sciences	-,58894	,29427	,405	-1,4961	,3182
	Mathematical Sciences	,24838	,28992	,947	-,6454	1,1421
	others	-1,46655	,81422	,518	-3,9766	1,0435
Mathematical Sciences	Chemical Sciences	-,37037	,23297	,640	-1,0886	,3478
	Biological Sciences	-,83732(*)	,25440	,029	-1,6216	-,0531

	Computer Sciences	-,24838	,28992	,947	-1,1421	,6454
	others	-1,71493	,80067	,333	-4,1832	,7534
others	Chemical Sciences	1,34456	,79572	,582	-1,1085	3,7976
	Biological Sciences	,87761	,80226	,879	-1,5956	3,3508
	Computer Sciences	1,46655	,81422	,518	-1,0435	3,9766
	Mathematical Sciences	1,71493	,80067	,333	-,7534	4,1832

The mean difference is significant at the .05 level.

7.2.5 Variations Across University Generation

The last level of aggregation in which we want to examine differences in, is the variation across university generation. Nigerian universities are also categorized in to generations. This categorization is made based on the period a university is either established or approved to operate as a university.

Universities that were established or approved on or before 1969 are called 1st generation universities, while those established or approved between 1970-1979 are called 2nd generation universities, those between 1980-1989 are called 3rd generation universities, those between 1990-1999 are called 4th generation universities and those established or approved from 2000 till date are called 5th generation universities. Our aim is to examine differences in all the sub- scales across the five generations of universities in Nigeria.

There exist strong and significant differences (0.05 levels) in the student's perception of clear goals across generation of universities. These differences were found significant between 2nd generation and 1st generation universities (mean diff. = 1.25), between 3rd generation and 1st generation universities (mean diff. = 3.87), between 3rd generation and 2nd generation universities (mean diff. = 2.62), between 4th generation and 1st generation universities (mean diff. = 3.46), between 4th generation and 2nd generation universities (mean diff. = 2.20), between 5th generation and 1st generation universities (mean diff. = 4.49) between 5th generation and 2nd generation universities (mean diff. = 3.24) and finally between 5th generation and 4th generation (mean diff. = 1.03).

The difference in the student's perception of clear goals is greater between 5th generation and 1st generation (mean diff. = 4.49). The value of the mean (23.94) indicates that students from the 5th generation universities (universities approved or established between 2000 up to date) perceived clear goals better than students from the remaining four categories of university generations. See table 7.5a(i) and 7.5a(ii) below for more details:

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Table 7.5a(i): Descriptive Statistics for Clear Goals Across University Generations

Clear Goals

University Generations	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	19,4526	3,92921	,21729	19,0251	19,8801	10,00	30,00
second generation universities	627	20,7033	3,54812	,14170	20,4251	20,9816	9,00	30,00
third generation universities	615	23,3285	4,75930	,19191	22,9516	23,7053	9,00	30,00
fourth generation univeristies	403	22,9132	3,27965	,16337	22,5920	23,2343	8,00	30,00
fifth generation universities	249	23,9478	3,81440	,24173	23,4717	24,4239	13,00	30,00
Total	2221	22,0108	4,26043	,09040	21,8335	22,1881	8,00	30,00

Table 7.5a(ii) Multiple Comparisons for Clear Goals Across University Generation

Dependent Variable: Clear goals
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-1,25075(*)	,27014	,000	-2,0835	-,4180
	third generation universities	-3,87586(*)	,27104	,000	-4,7114	-3,0403
	fourth generation univeristies	-3,46055(*)	,29475	,000	-4,3692	-2,5519
	fifth generation universities	-4,49519(*)	,33308	,000	-5,5220	-3,4684
second generation universities	first generation universities	1,25075(*)	,27014	,000	,4180	2,0835
	third generation universities	-2,62511(*)	,22475	,000	-3,3180	-1,9322
	fourth generation univeristies	-2,20980(*)	,25284	,000	-2,9893	-1,4303
	fifth generation universities	-3,24444(*)	,29664	,000	-4,1589	-2,3299
	first generation universities	3,87586(*)	,27104	,000	3,0403	4,7114
	second generation universities	2,62511(*)	,22475	,000	1,9322	3,3180
	fourth generation univeristies	,41530	,25380	,613	-,3671	1,1977

	fifth generation universities	-,61934	,29746	,363	-1,5364	,2977
fourth generation univeristies	first generation universities	3,46055(*)	,29475	,000	2,5519	4,3692
	second generation universities	2,20980(*)	,25284	,000	1,4303	2,9893
	third generation universities	-,41530	,25380	,613	-1,1977	,3671
	fifth generation universities	-1,03464(*)	,31922	,033	-2,0187	-,0505
fifth generation universities	first generation universities	4,49519(*)	,33308	,000	3,4684	5,5220
	second generation universities	3,24444(*)	,29664	,000	2,3299	4,1589
	third generation universities	,61934	,29746	,363	-,2977	1,5364
	fourth generation univeristies	1,03464(*)	,31922	,033	,0505	2,0187

* The mean difference is significant at the .05 level.

The perception of students on the availability of course level resources and facilities also differs strongly and significantly across the university generation. The differences are clearly seen between 1st generation and 3rd generation universities (mean diff. = 3.18), between 2nd generation and 3rd generation (mean diff. = 2.29), between 4th generation and 1st generation universities (mean diff.= 3.94), between 4th generation and 2nd generation universities (mean diff. = 4.83), between 4th generation and 3rd generation universities (mean diff. = 7.12), between the 5th generation and 1st generation universities (mean diff. = 4.07), between 5th generation and 2nd generation universities (mean diff. = 4.96), and finally between the 5th generation and 3rd generation universities (mean diff. = 7.25).

From all indication, especially from the mean values (32.87), it is clearly seen that the difference between 5th generation and 3rd generation universities (mean diff. = 4.96) is greater than those from the other university generation. It is also obvious that students from the 5th generation universities perceived the availability of course level resources and facilities better than those students from the remaining university generations. See tables 7.5b(i) and 7.5b(ii) below for more details:

Table 7.5b (i): Descriptive Statistics for Course Level Resources Across University Generations

Course Level Resources

University Generation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum

first generation universities	327	28,8012	4,81310	,26616	28,2776	29,3248	13,00	44,00
second generation universities	627	27,9139	6,19251	,24731	27,4282	28,3995	13,00	48,00
third generation universities	615	25,6195	7,92894	,31973	24,9916	26,2474	10,00	45,00
fourth generation univeristies	403	32,7444	5,13128	,25561	32,2419	33,2469	17,00	49,00
fifth generation universities	249	32,8755	5,68428	,36023	32,1660	33,5850	14,00	46,00
Total	2221	28,8420	6,90579	,14653	28,5546	29,1293	10,00	49,00

Table 7.5b(ii): Multiple Comparisons for course level resources Across university generation

Dependent Variable: course level resources
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	,88735	,43170	,377	-,4435	2,2182
	third generation universities	3,18171(*)	,43314	,000	1,8464	4,5170
	fourth generation univeristies	-3,94319(*)	,47103	,000	-5,3953	-2,4911
	fifth generation universities	-4,07428(*)	,53229	,000	-5,7152	-2,4333
second generation universities	first generation universities	-,88735	,43170	,377	-2,2182	,4435
	third generation universities	2,29436(*)	,35917	,000	1,1871	3,4016
	fourth generation univeristies	-4,83054(*)	,40406	,000	-6,0762	-3,5849
	fifth generation universities	-4,96163(*)	,47406	,000	-6,4231	-3,5002
third generation universities	first generation universities	-3,18171(*)	,43314	,000	-4,5170	-1,8464
	second generation universities	-2,29436(*)	,35917	,000	-3,4016	-1,1871
	fourth generation univeristies	-7,12490(*)	,40560	,000	-8,3753	-5,8745
	fifth generation universities	-7,25599(*)	,47537	,000	-8,7215	-5,7905
fourth generation univeristies	first generation universities	3,94319(*)	,47103	,000	2,4911	5,3953
	second generation universities	4,83054(*)	,40406	,000	3,5849	6,0762
	third generation universities	7,12490(*)	,40560	,000	5,8745	8,3753
	fifth generation universities	-,13109	,51014	,999	-1,7037	1,4416

fifth generation universities	first generation universities	4,07428(*)	,53229	,000	2,4333	5,7152
	second generation universities	4,96163(*)	,47406	,000	3,5002	6,4231
	third generation universities	7,25599(*)	,47537	,000	5,7905	8,7215
	fourth generation univeristies	,13109	,51014	,999	-1,4416	1,7037

The mean difference is significant at the .05 level.

In the same vain, the student's perception with regards good teaching differs significantly across university generation. There exist strong significant differences (0.05 levels) between 3rd generation and 1st generation universities (mean diff. = 6.55), between 3rd generation and 2nd generation universities (mean diff. = 6.16), between 4th generation and 1st generation universities (mean diff. = 7.44), between 4th generation and 2nd generation universities (mean diff. = 7.02), between 5th generation and 1st generation universities (mean diff. = 7.73) and finally between 5th generation and 2nd generation universities (mean diff. 7.34).

The variation in the student's perception of good teaching seems to be greater between the 5th generation and the 1st generation universities (mean diff. = 7.73). As a result of the high mean value (38.08), it is seen that the student's perception of good teaching is better in the 5th generation universities than those from the 1st , 2nd, 3rd, and 4th generation universities. For more details on this, see the tables 7.5c(i) and 7.5c(ii) below:

Table 7.5c (i): Descriptive Statistics for Good Teaching Across University Generations

Good Teaching

University Generations	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	30,3486	5,91926	,32734	29,7047	30,9926	18,00	47,00
second generation universities	627	30,7384	6,57776	,26269	30,2226	31,2543	14,00	49,00
third generation universities	615	36,9024	8,14847	,32858	36,2572	37,5477	14,00	50,00
fourth generation univeristies	403	37,7593	5,56724	,27732	37,2141	38,3045	19,00	50,00
fifth generation universities	249	38,0884	7,29230	,46213	37,1782	38,9986	16,00	50,00
Total	2221	34,4858	7,66608	,16267	34,1668	34,8048	14,00	50,00

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Table 7.5c(ii): Multiple Comparisons for Good Teaching Across University Generation

Dependent Variable: Good Teaching
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-,38981	,46937	,953	-1,8368	1,0572
	third generation universities	-6,55382(*)	,47094	,000	-8,0056	-5,1020
	fourth generation univeristies	-7,41068(*)	,51214	,000	-8,9895	-5,8319
	fifth generation universities	-7,73973(*)	,57875	,000	-9,5239	-5,9556
second generation universities	first generation universities	,38981	,46937	,953	-1,0572	1,8368
	third generation universities	-6,16400(*)	,39052	,000	-7,3679	-4,9601
	fourth generation univeristies	-7,02087(*)	,43932	,000	-8,3752	-5,6665
	fifth generation universities	-7,34992(*)	,51543	,000	-8,9389	-5,7609
third generation universities	first generation universities	6,55382(*)	,47094	,000	5,1020	8,0056
	second generation universities	6,16400(*)	,39052	,000	4,9601	7,3679
	fourth generation univeristies	-,85687	,44100	,437	-2,2164	,5026
	fifth generation universities	-1,18591	,51686	,262	-2,7793	,4075
fourth generation univeristies	first generation universities	7,41068(*)	,51214	,000	5,8319	8,9895
	second generation universities	7,02087(*)	,43932	,000	5,6665	8,3752
	third generation universities	,85687	,44100	,437	-,5026	2,2164
	fifth generation universities	-,32905	,55465	,986	-2,0389	1,3809
fifth generation universities	first generation universities	7,73973(*)	,57875	,000	5,9556	9,5239
	second generation universities	7,34992(*)	,51543	,000	5,7609	8,9389
	third generation universities	1,18591	,51686	,262	-,4075	2,7793
	fourth generation univeristies	,32905	,55465	,986	-1,3809	2,0389

* The mean difference is significant at the .05 level.

Looking at the student's perception about emphasis on independence, it was found that there exist borderline differences (0.005 level) across the university

generations. Differences occurred between 1st generation and 3rd generation universities (mean diff. = 0.72), between 1st generation and 5th generation universities (mean diff. = 1.33), between 2nd generation and 5th generation universities (mean diff. = 0.81), between 4th generation and 2nd generation universities (mean diff. = 0.89), between 4th generation and 3rd generation universities (mean diff. = 1.10), and finally between 4th generation and 5th generation universities (mean diff. = 1.70).

The difference in the student's perception with regards emphasis on independence is greater between 4th generation and 5th generation universities (mean diff. = 1.70). Also based on the mean values, students from the 4th generation universities tend to perceive better emphasis on independence (mean = 18.74) than those from the other university generations. See tables 7. 5d (i) and 7.5d (ii) below for more details:

Table 7.5d (i): Descriptive Statistics for Emphasis on Independence Across University Generations

Emphasis on Independance

University Generation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	18,3731	3,00433	,16614	18,0462	18,6999	11,00	29,00
second generation universities	627	17,8533	3,49498	,13958	17,5792	18,1274	9,00	27,00
third generation universities	615	17,6472	3,41972	,13790	17,3763	17,9180	6,00	28,00
fourth generation univeristies	403	18,7494	3,20513	,15966	18,4355	19,0633	8,00	29,00
fifth generation universities	249	17,0402	3,52388	,22332	16,6003	17,4800	6,00	27,00
Total	2221	17,9442	3,39336	,07200	17,8030	18,0854	6,00	29,00

Table 7.5d (ii): Multiple Comparisons for Emphasis on Independence Across University Generations

Dependent Variable: Emphasis on Independence
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	,51982	,22902	,272	-,1862	1,2258
	third generation universities	,72593(*)	,22978	,041	,0176	1,4343
	fourth generation univeristies	-,37629	,24988	,687	-1,1466	,3941
	fifth generation universities	1,33293(*)	,28238	,000	,4624	2,2035
second generation universities	first generation universities	-,51982	,22902	,272	-1,2258	,1862
	third generation universities	,20612	,19054	,883	-,3813	,7935
	fourth generation univeristies	-,89611(*)	,21435	,002	-1,5569	-,2353
	fifth generation universities	,81311(*)	,25149	,034	,0378	1,5884
third generation universities	first generation universities	-,72593(*)	,22978	,041	-1,4343	-,0176
	second generation universities	-,20612	,19054	,883	-,7935	,3813
	fourth generation univeristies	-1,10223(*)	,21517	,000	-1,7656	-,4389
	fifth generation universities	,60699	,25219	,216	-,1704	1,3844
fourth generation univeristies	first generation universities	,37629	,24988	,687	-,3941	1,1466
	second generation universities	,89611(*)	,21435	,002	,2353	1,5569
	third generation universities	1,10223(*)	,21517	,000	,4389	1,7656

	fifth generation universities	1,70922(*)	,27063	,000	,8749	2,5435
fifth generation universities	first generation universities	-1,33293(*)	,28238	,000	-2,2035	-,4624
	second generation universities	-,81311(*)	,25149	,034	-1,5884	-,0378
	third generation universities	-,60699	,25219	,216	-1,3844	,1704
	fourth generation univeristies	-1,70922(*)	,27063	,000	-2,5435	-,8749

The mean difference is significant at the .05 level

Concerning appropriate workload, the student' perception varies across university generations. There exist strong significant differences (0.05 level) between 1st generation and 2nd generation universities (mean diff. = 1.76), between 3rd generation and 2nd generation universities (mean diff. = 1.87), between 4th generation and 1st generation universities (mean diff. = 1.35), between 4th generation and 2nd generation universities (mean diff. = 3.12), between 4th generation and 3rd generation universities (mean diff. = 1.25), between 5th generation and 1st generation universities (mean diff. = 1.31), between 5th generation and 2nd generation universities (mean diff. = 3.08), and finally, between 5th generation and 3rd generation universities (mean diff. = 1.21).

The student's perception on appropriate workload differs greatly between 4th generation and 2nd generation universities (mean diff. = 3.12) and as a result of the mean values (mean = 15.65) , it is vividly clear that students from the 4th generation universities perceived appropriate workload better than those from the other university generations. Se table 7.5e(i) and 7.5e (ii) below for more details:

Table 7.5e (i): Descriptive Statistics for Appropriate Workload Across University Generations

Appropriate Workload

University Generation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	14,2966	3,08580	,17065	13,9609	14,6323	6,00	21,00
second generation	627	12,5279	3,75960	,15014	12,2331	12,8228	5,00	22,00

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	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
universities third generation universities	615	14,4000	4,25483	,17157	14,0631	14,7369	5,00	25,00
fourth generation univeristies	403	15,6501	3,45031	,17187	15,3122	15,9880	5,00	24,00
fifth generation universities	249	15,6145	4,28660	,27165	15,0794	16,1495	6,00	25,00
Total	2221	14,2193	4,00091	,08490	14,0528	14,3858	5,00	25,00

Table 7.5e(ii): Multiple Comparisons for Appropriate Workload Across University Generation

Dependent Variable: Appropriate workload
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	1,76873(*)	,26087	,000	,9645	2,5729
	third generation universities	-,10336	,26174	,997	-,9103	,7035
	fourth generation univeristies	-1,35349(*)	,28464	,000	-2,2310	-,4760
	fifth generation universities	-1,31782(*)	,32166	,002	-2,3094	-,3262
second generation universities	first generation universities	-1,76873(*)	,26087	,000	-2,5729	-,9645
	third generation universities	-1,87209(*)	,21704	,000	-2,5412	-1,2030
	fourth generation univeristies	-3,12221(*)	,24417	,000	-3,8749	-2,3695
	fifth generation universities	-3,08655(*)	,28647	,000	-3,9697	-2,2034
third generation universities	first generation universities	,10336	,26174	,997	-,7035	,9103
	second generation universities	1,87209(*)	,21704	,000	1,2030	2,5412
	fourth generation univeristies	-1,25012(*)	,24510	,000	-2,0057	-,4945
	fifth generation universities	-1,21446(*)	,28726	,001	-2,1000	-,3289
fourth generation univeristies	first generation universities	1,35349(*)	,28464	,000	,4760	2,2310
	second generation universities	3,12221(*)	,24417	,000	2,3695	3,8749
	third generation universities	1,25012(*)	,24510	,000	,4945	2,0057
	fifth generation universities	,03567	,30827	1,000	-,9147	,9860
	first generation universities	1,31782(*)	,32166	,002	,3262	2,3094

second generation universities	3,08655(*)	,28647	,000	2,2034	3,9697
third generation universities	1,21446(*)	,28726	,001	,3289	2,1000
fourth generation univeristies	-,03567	,30827	1,000	-,9860	,9147

* The mean difference is significant at the .05 level.

Similarly, with regards the student's perception of appropriate assessment, there exist significant differences across the university generations. The differences are significant (0.05 level) between 1st generation and 4th generation universities (mean diff. = 1.69), between 1st generation and 5th generation (mean diff. = 1.35), between 2nd generation and 1st generation universities (mean diff. = 1.58), between 2nd generation and 3rd generation universities (mean diff. = 1.66), between 2nd generation and 4th generation universities (mean diff. = 3.27), between 2nd generation and 5th generation universities (mean diff. = 2.93), between 3rd generation and 4th generation universities (mean diff.= 1.60) and finally, between 3rd generation and 5th generation universities (mean diff.= 1.27).

The difference in student's perception with regards appropriate assessment is greater between 2nd generation and 4th generation universities (mean diff. = 3.27). The result of the mean values also shows that students form the 2nd generation universities (mean = 17.21) tend to perceive appropriate assessment better than those from the remaining university generations. See tables 7.5f(i) and 7.5f(ii) below for more details:

Table 7.5f (i): Descriptive Statistics for Appropriate Assessment Across University Generations

Appropriate Assessment

University Generation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	15,6361	2,80758	,15526	15,3306	15,9415	6,00	23,00
second generation universities	627	17,2185	3,70283	,14788	16,9281	17,5089	5,00	25,00
third generation universities	615	15,5528	4,24687	,17125	15,2165	15,8892	5,00	25,00
fourth generation univeristies	403	13,9454	4,20637	,20953	13,5335	14,3573	5,00	25,00
fifth generation universities	249	14,2811	4,43334	,28095	13,7278	14,8345	5,00	25,00
Total	2221	15,6011	4,10419	,08709	15,4303	15,7719	5,00	25,00

Table 7.5f(ii) Multiple Comparisons for Appropriate Assessment Across University Generation

Dependent Variable: Appropriate Assessment
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-1,58242(*)	,26803	,000	-2,4087	-,7561
	third generation universities	,08324	,26892	,999	-,7458	,9123
	fourth generation univeristies	1,69068(*)	,29245	,000	,7891	2,5922
	fifth generation universities	1,35496(*)	,33049	,002	,3361	2,3738
second generation universities	first generation universities	1,58242(*)	,26803	,000	,7561	2,4087
	third generation universities	1,66566(*)	,22300	,000	,9782	2,3531
	fourth generation univeristies	3,27309(*)	,25087	,000	2,4997	4,0465
	fifth generation universities	2,93738(*)	,29433	,000	2,0300	3,8447
third generation universities	first generation universities	-,08324	,26892	,999	-,9123	,7458
	second generation universities	-1,66566(*)	,22300	,000	-2,3531	-,9782
	fourth generation univeristies	1,60744(*)	,25183	,000	,8311	2,3838
	fifth generation universities	1,27172(*)	,29515	,001	,3618	2,1816
fourth generation univeristies	first generation universities	-1,69068(*)	,29245	,000	-2,5922	-,7891
	second generation universities	-3,27309(*)	,25087	,000	-4,0465	-2,4997
	third generation universities	-1,60744(*)	,25183	,000	-2,3838	-,8311
	fifth generation universities	-,33572	,31673	,890	-1,3121	,6407
fifth generation universities	first generation universities	-1,35496(*)	,33049	,002	-2,3738	-,3361
	second generation universities	-2,93738(*)	,29433	,000	-3,8447	-2,0300
	third generation universities	-1,27172(*)	,29515	,001	-2,1816	-,3618
	fourth generation univeristies	,33572	,31673	,890	-,6407	1,3121

* The mean difference is significant at the .05 level.

On the other hand, the student's perception with regards adoption of surface learning strategy, there exist significant differences across university

generation. These differences occurred between 1st generation and 3rd generation universities (mean diff. = 1.58), between 1st generation and 4th generation universities (mean diff. = 1.33), between 1st generation and 5th generation universities (mean diff. = 2.06), between 2nd generation and 3rd generation universities (mean diff. = 1.94), between 2nd generation and 4th generation universities (mean diff. = 1.68), and finally, between 2nd generation and 5th generation universities (mean diff. = 2.41).

The difference in student's perception of surface learning strategy is greater between 2nd generation and 5th generation universities (mean diff. = 2.41). The mean values (mean = 12.55)also revealed that students from the 2nd generation universities perceived surface learning strategy better than those form the other university generations. See tables 7.5g(i) and 7.5g (ii) below for more details:

Table 7.5g (i): Descriptive Statistics for Surface Learning Strategy Across University Generation

Surface Learning

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	12,2049	2,75885	,15256	11,9048	12,5050	4,00	20,00
second generation universities	627	12,5566	3,40755	,13608	12,2894	12,8239	4,00	20,00
third generation universities	615	10,6163	4,21789	,17008	10,2822	10,9503	4,00	20,00
fourth generation univeristies	403	10,8734	3,77823	,18821	10,5035	11,2434	4,00	20,00
fifth generation universities	249	10,1406	4,20928	,26675	9,6152	10,6660	4,00	20,00
Total	2221	11,3913	3,84034	,08149	11,2315	11,5511	4,00	20,00

Table 7.5g(ii) Multiple Comparisons for Surface Learning Strategy Across University Generation

Dependent Variable: Surface learning
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-,35173	,25433	,752	-1,1358	,4323
	third generation universities	1,58863(*)	,25518	,000	,8020	2,3753
	fourth generation univeristies	1,33144(*)	,27750	,000	,4760	2,1869
	fifth generation universities	2,06433(*)	,31360	,000	1,0976	3,0311
second generation universities	first generation universities	,35173	,25433	,752	-,4323	1,1358
	third generation universities	1,94036(*)	,21160	,000	1,2880	2,5927
	fourth generation univeristies	1,68317(*)	,23805	,000	,9493	2,4170
	fifth generation universities	2,41606(*)	,27929	,000	1,5551	3,2771
third generation universities	first generation universities	-1,58863(*)	,25518	,000	-2,3753	-,8020
	second generation universities	-1,94036(*)	,21160	,000	-2,5927	-1,2880
	fourth generation univeristies	-,25719	,23896	,885	-,9938	,4795
	fifth generation universities	,47570	,28006	,577	-,3877	1,3391
fourth generation univeristies	first generation universities	-1,33144(*)	,27750	,000	-2,1869	-,4760
	second generation universities	-1,68317(*)	,23805	,000	-2,4170	-,9493
	third generation universities	,25719	,23896	,885	-,4795	,9938
	fifth generation universities	,73289	,30054	,204	-,1936	1,6594
fifth generation universities	first generation universities	-2,06433(*)	,31360	,000	-3,0311	-1,0976
	second generation universities	-2,41606(*)	,27929	,000	-3,2771	-1,5551
	third generation universities	-,47570	,28006	,577	-1,3391	,3877
	fourth generation univeristies	-,73289	,30054	,204	-1,6594	,1936

* The mean difference is significant at the .05 level.

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Similarly, the student's perception with regards deep learning strategy differs significantly across the university generations. There exist significant differences (0.05 levels) between 3rd generation and 1st generation universities (mean diff. = 2.69), between 3rd generation and 2nd generation universities (mean diff. =1.12), between 3rd generation and 4th generation universities (mean diff. = 0.72), between 4th generation and 1st generation universities (mean diff. =1.96), between 5th generation and 1st generation universities (mean diff. = 2.87) and finally, between 5th generation and 4th generation universities (mean diff. = 0.91).

The difference in the students perception of deep learning strategy is greater between 5th generation and 1st generation universities (mean diff. =2.87). The mean value (mean =16.39) also revealed that the students from the 5th generation universities perceived deep learning strategy better than students from the other university generations. See tables 7.5h(i) and 7.5h (ii) below for more details:

Table 7.5h (i): Descriptive Statistics for Deep Learning Strategy Across University Generation

Deep Learning

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	13,5199	2,94303	,16275	13,1997	13,8401	6,00	20,00
second generation universities	627	15,0861	3,03687	,12128	14,8480	15,3243	4,00	20,00
third generation universities	615	16,2130	2,77644	,11196	15,9931	16,4329	4,00	20,00
fourth generation univeristies	403	15,4864	2,47106	,12309	15,2444	15,7283	4,00	20,00
fifth generation universities	249	16,3976	2,44260	,15479	16,0927	16,7025	4,00	20,00
Total	2221	15,3872	2,93618	,06230	15,2650	15,5094	4,00	20,00

Table 7.5h(ii): Multiple Comparisons for Deep Learning Strategy Across University Generations

Dependent Variable: Deep Learning
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-1,56625(*)	,19040	,000	-2,1532	-,9793

	third generation universities	-2,69313(*)	,19103	,000	-3,2820	-2,1042
	fourth generation univeristies	-1,96647(*)	,20774	,000	-2,6069	-1,3260
	fifth generation universities	-2,87771(*)	,23476	,000	-3,6014	-2,1540
second generation universities	first generation universities	1,56625(*)	,19040	,000	,9793	2,1532
	third generation universities	-1,12688(*)	,15841	,000	-1,6152	-,6385
	fourth generation univeristies	-,40023	,17821	,283	-,9496	,1491
	fifth generation universities	-1,31147(*)	,20908	,000	-1,9560	-,6669
third generation universities	first generation universities	2,69313(*)	,19103	,000	2,1042	3,2820
	second generation universities	1,12688(*)	,15841	,000	,6385	1,6152
	fourth generation univeristies	,72666(*)	,17889	,002	,1752	1,2781
	fifth generation universities	-,18458	,20966	,942	-,8309	,4618
fourth generation univeristies	first generation universities	1,96647(*)	,20774	,000	1,3260	2,6069
	second generation universities	,40023	,17821	,283	-,1491	,9496
	third generation universities	-,72666(*)	,17889	,002	-1,2781	-,1752
	fifth generation universities	-,91124(*)	,22499	,003	-1,6048	-,2176
fifth generation universities	first generation universities	2,87771(*)	,23476	,000	2,1540	3,6014
	second generation universities	1,31147(*)	,20908	,000	,6669	1,9560
	third generation universities	,18458	,20966	,942	-,4618	,8309
	fourth generation univeristies	,91124(*)	,22499	,003	,2176	1,6048

* The mean difference is significant at the .05 level.

Finally, with regards the students perception of generic skills acquired, there exist strong significant difference (0.05 levels) across university generations. The differences are significant between 2nd generation and 1st generation universities (mean diff. = 3.59), between 3rd generation and 1st generation universities (mean diff. = 5.45), between 3rd generation and 2nd generation (mean diff. = 1.86), between 4th generation and 1st generation universities (mean diff. = 5.35), between 4th generation and 2nd generation universities (mean diff. = 1.75), between 5th generation and 1st generation (mean diff. = 5.65) and finally, between 5th generation and 2nd generation (mean diff. = 2.06).

The highest difference in the student's perception of generic skills is the difference between 5th generation and 1st generation universities (mean diff. =

5.65). Also form the mean values (20.85), it is evident that students from the 5th generation universities perceived the acquisition of generic skills better than students of the other university generations. Se tableS 7.5I(i) and 7.5I(ii) below for more details:

Table 7.5I (i): Descriptive Statistics for Generic Skills Across University Generation

Generic Skills

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-3,59057(*)	,25688	,000	-4,3825	-2,7987
	third generation universities	-5,45794(*)	,25773	,000	-6,2525	-4,6634
	fourth generation univeristies	-5,35019(*)	,28028	,000	-6,2142	-4,4861
	fifth generation universities	-5,65569(*)	,31673	,000	-6,6321	-4,6793
second generation universities	first generation universities	3,59057(*)	,25688	,000	2,7987	4,3825
	third generation universities	-1,86737(*)	,21372	,000	-2,5262	-1,2085
	fourth generation univeristies	-1,75962(*)	,24043	,000	-2,5008	-1,0184
	fifth generation universities	-2,06512(*)	,28208	,000	-2,9347	-1,1955
third generation universities	first generation universities	5,45794(*)	,25773	,000	4,6634	6,2525
	second generation universities	1,86737(*)	,21372	,000	1,2085	2,5262
	fourth generation univeristies	,10775	,24135	,995	-,6363	,8518
	fifth generation universities	-,19775	,28286	,975	-1,0698	,6743
fourth generation univeristies	first generation universities	5,35019(*)	,28028	,000	4,4861	6,2142
	second generation universities	1,75962(*)	,24043	,000	1,0184	2,5008
	third generation universities	-,10775	,24135	,995	-,8518	,6363
	fifth generation universities	-,30550	,30355	,908	-1,2413	,6303
fifth generation universities	first generation universities	5,65569(*)	,31673	,000	4,6793	6,6321
	second generation universities	2,06512(*)	,28208	,000	1,1955	2,9347
	third generation universities	,19775	,28286	,975	-,6743	1,0698
	fourth generation univeristies	,30550	,30355	,908	-,6303	1,2413

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Table 7.5I (ii): Multiple Comparisons for Generic Skills Across University Generations

Dependent Variable: Generic skills
Scheffe

University Generations	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	15,1957	5,25353	,29052	14,6242	15,7673	7,00	25,00
second generation universities	627	18,7863	3,92529	,15676	18,4784	19,0941	5,00	25,00
third generation universities	615	20,6537	3,62475	,14616	20,3666	20,9407	5,00	25,00
fourth generation univeristies	403	20,5459	2,21814	,11049	20,3287	20,7631	10,00	25,00
fifth generation universities	249	20,8514	3,32240	,21055	20,4367	21,2661	5,00	25,00
Total	2221	19,3255	4,21546	,08945	19,1501	19,5009	5,00	25,00

* The mean difference is significant at the .05 level.

7.3 Scale or Dimension Variations

3. Are there any variation of the dimension of the quality of teaching and learning (i.e Intended Curriculum, Curriculum in Action and Learned Curriculum) :

- Acorss university type,
- Across gender
- Across level of study
- Across courses of study
- Across university generation

To answer the second research question, we have to explain what "scale" means here. The Scales in this research stands for the three dimensions of quality in which we have based the research upon (i.e Intended Curriculum, Curriculum in Action and Learned Curriculum) . The aggregate of each of the three dimensions is made up of a portion of the sub-scales we have discussed above. Each scale or dimension is defined by the total scores of the subs-scales under it.

The intended curriculum scale or dimension is defined by the score totals of the clear goals and course level resource and materials sub-scales.

The curriculum in action scale or dimension is defined by the score totals of the good teaching, emphasis on independence, appropriate workload and appropriate assessment sub-scales.

The learned curriculum is defined by the score totals of the surface learning strategy, deep learning strategy and the generic skills sub-scales.

By linking up the sub-scales to form the scales or dimensions above, we are actually introducing the link between the Student Course Experience Questionaire (SCEQ) and the Course Experience Questionaire (CEQ) to the three dimensions of quality developed in this research.

At this stage , using ANOVA and descriptive analysis, we want to examine differences or variations of these scales or dimensions of quality of teaching and learning across the five aggregates or variables earlier mentioned above.

7.3.1 Intended Curriculum Variation

There exist a strong significant difference in the student's evaluation of intended curriculum across the university type. Differences occurred between private and state universities (mean diff. = 5.74), between private and federal universities (mean diff.= 10.65) and between state and federal universities (mean diff. = 4.90).

The difference in student's evaluation of intended curriculum across university type is greater between private and federal universities. Hence considering the highest mean value (mean = 58.61), we conclude that students from private universities evaluated intended curriculum better than students from the other two types of universities. See tables 7.6a (i) and 7.6a (ii) below for more details:

Table 7.6a(i): Descriptive Statistics for intended Curriculum Across university Type

Intended Curriculum

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	58,6175	4,93205	,31131	58,0044	59,2307	39,00	73,00
State university	761	52,8765	9,37511	,33985	52,2093	53,5436	25,00	76,00
Federal university	1209	47,9669	7,82056	,22492	47,5256	48,4082	27,00	75,00
Total	2221	50,8528	8,88061	,18844	50,4832	51,2223	25,00	76,00

Table 7.6a (ii): Multiple Comparisons for Intended Curriculum Across University Type

Dependent Variable: Intended Curriculum
Scheffe

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	5,74105(*)	,59209	,000	4,2908	7,1913
	Federal university	10,65062(*)	,56423	,000	9,2686	12,0326
State university	Private university	-5,74105(*)	,59209	,000	-7,1913	-4,2908
	Federal university	4,90956(*)	,37640	,000	3,9876	5,8315
Federal university	Private university	-10,65062(*)	,56423	,000	-12,0326	-9,2686
	State university	-4,90956(*)	,37640	,000	-5,8315	-3,9876

* The mean difference is significant at the .05 level.

On the other hand, there seems to be no significant difference in the student's evaluation of intended curriculum across gender and across level of study. Both males and females at all levels of study presented in this study evaluated the intended curriculum the same way.

All the same, there exist borderline difference in the student's evaluation of intended curriculum across course of study. These differences occurred between chemical sciences and mathematical sciences (mean diff. = 1.97) and between biological sciences and mathematical sciences (mean diff. = 2.09). The difference is greater between biological sciences and mathematical sciences. Hence going by the values of the mean (51.43), it is evident that students from biological sciences evaluated the intended curriculum better than students from the remaining courses of study. See details in tables 7.6b (i) and 7.6b (ii) below:

Table 7.6b (i): Descriptive Statistics for Intended Curriculum Across Course of Study

Intended Curriculum

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	51,3119	8,64310	,31290	50,6977	51,9262	29,00	75,00
Biological Sciences	526	51,4373	8,86958	,38673	50,6775	52,1970	28,00	73,00

Computer Sciences	334	51,2156	9,66628	,52892	50,1751	52,2560	29,00	74,00
Mathematical Sciences	569	49,3374	8,62412	,36154	48,6273	50,0476	25,00	73,00
others	29	53,7241	7,47805	1,38864	50,8796	56,5686	42,00	76,00
Total	2221	50,8528	8,88061	,18844	50,4832	51,2223	25,00	76,00

Table 7.6b (ii): Multiple Comparisons for Intended Curriculum Across Course of Study

Dependent Variable: Intended Curriculum
Scheffe

(I) Course Sstudy	(J) Course Study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	-,12534	,50095	1,000	-1,6697	1,4190
	Computer Sciences	,09636	,57996	1,000	-1,6915	1,8843
	Mathematical Sciences	1,97449(*)	,48962	,003	,4651	3,4839
	others	-2,41221	1,67236	,721	-7,5678	2,7434
Biological Sciences	Chemical Sciences	,12534	,50095	1,000	-1,4190	1,6697
	Computer Sciences	,22169	,61846	,998	-1,6849	2,1283
	Mathematical Sciences	2,09983(*)	,53467	,004	,4515	3,7481
	others	-2,28688	1,68609	,765	-7,4848	2,9110
Computer Sciences	Chemical Sciences	-,09636	,57996	1,000	-1,8843	1,6915
	Biological Sciences	-,22169	,61846	,998	-2,1283	1,6849
	Mathematical Sciences	1,87813	,60931	,050	-,0003	3,7565
	others	-2,50857	1,71123	,708	-7,7840	2,7668
Mathematical Sciences	Chemical Sciences	-1,97449(*)	,48962	,003	-3,4839	-,4651
	Biological Sciences	-2,09983(*)	,53467	,004	-3,7481	-,4515
	Computer Sciences	-1,87813	,60931	,050	-3,7565	,0003
	others	-4,38670	1,68276	,148	-9,5744	,8009
others	Chemical Sciences	2,41221	1,67236	,721	-2,7434	7,5678
	Biological Sciences	2,28688	1,68609	,765	-2,9110	7,4848
	Computer Sciences	2,50857	1,71123	,708	-2,7668	7,7840
	Mathematical Sciences	4,38670	1,68276	,148	-,8009	9,5744

* The mean difference is significant at the .05 level.

Finally on the intended curriculum, there exist strong significant difference between 4th generation and 1st generation universities (mean diff. = 7.40), between 4th generation and 2nd generation universities (mean diff.= 7.04), between 4th generation and 3rd generation universities (mean diff. = 6.70), between 5th generation and 1st generation universities (mean diff. = 8.56),

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between 5th generation and 2nd generation universities (mean diff. = 8.20), between 5th generation and 3rd generation universities (mean diff. = 7.87).

The difference in student's evaluation of intended curriculum across university generation is greater between 5th generation and 1st generation universities. Hence going by the high value of the mean value (56.82), it is clear that the student's form the 5th generation universities evaluated better intended curriculum than students from the remaining university generations. For more details, see tables 7.6c (i) and 7.6c (ii) below:

Table 7.6c (i): Descriptive Statistics for Intended Curriculum Across University Generation

Intended Curriculum

University Generation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	48,2538	6,48404	,35857	47,5484	48,9592	32,00	68,00
second generation universities	627	48,6172	8,01478	,32008	47,9887	49,2458	27,00	71,00
third generation universities	615	48,9480	9,73913	,39272	48,1767	49,7192	25,00	75,00
fourth generation univeristies	403	55,6576	7,19223	,35827	54,9533	56,3619	26,00	76,00
fifth generation universities	249	56,8233	8,12608	,51497	55,8090	57,8376	30,00	73,00
Total	2221	50,8528	8,88061	,18844	50,4832	51,2223	25,00	76,00

Table 7.c (ii): Multiple Comparisons for Intended Curriculum Across University Generation

Dependent Variable: Intended Curriculum
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-,36340	,55995	,981	-2,0896	1,3628
	third generation universities	-,69414	,56182	,822	-2,4261	1,0379
	fourth generation univeristies	-7,40375(*)	,61097	,000	-9,2873	-5,5202

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	fifth generation universities	-8,56947(*)	,69043	,000	-10,6980	-6,4410
second generation universities	first generation universities	,36340	,55995	,981	-1,3628	2,0896
	third generation universities	-,33074	,46588	,973	-1,7670	1,1055
	fourth generation univeristies	-7,04034(*)	,52410	,000	-8,6561	-5,4246
	fifth generation universities	-8,20607(*)	,61490	,000	-10,1017	-6,3104
third generation universities	first generation universities	,69414	,56182	,822	-1,0379	2,4261
	second generation universities	,33074	,46588	,973	-1,1055	1,7670
	fourth generation univeristies	-6,70960(*)	,52610	,000	-8,3315	-5,0877
	fifth generation universities	-7,87533(*)	,61660	,000	-9,7762	-5,9745
fourth generation univeristies	first generation universities	7,40375(*)	,61097	,000	5,5202	9,2873
	second generation universities	7,04034(*)	,52410	,000	5,4246	8,6561
	third generation universities	6,70960(*)	,52610	,000	5,0877	8,3315
	fifth generation universities	-1,16572	,66169	,541	-3,2056	,8742
fifth generation universities	first generation universities	8,56947(*)	,69043	,000	6,4410	10,6980
	second generation universities	8,20607(*)	,61490	,000	6,3104	10,1017
	third generation universities	7,87533(*)	,61660	,000	5,9745	9,7762
	fourth generation univeristies	1,16572	,66169	,541	-,8742	3,2056

* The mean difference is significant at the .05 level.

7.3.2 Curriculum in Action Variation

From the analysis of the curriculum in action, there exist strong significant difference in the student's evaluation of the curriculum in action across university type. These difference are found significant between private universities and federal universities (mean diff. = 6.98) and between state universities and federal universities (mean diff. = 7.60). The difference is greater between state universities and federal universities (mean diff. = 7.60); hence based on the mean value (mean = 86.45) it is evident that students from the state universities evaluated curriculum in action better than the other types of universities. See tables 7.7a(i) and 7.7a (ii) below for more details:

Table 7.7a (i): Descriptive Statistics for Curriculum in Action Across University Type

Curriculum in Action

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	-,61928	,65252	,637	-2,2176	,9790
	Federal university	6,98539(*)	,62181	,000	5,4623	8,5084
State university	Private university	,61928	,65252	,637	-,9790	2,2176
	Federal university	7,60467(*)	,41482	,000	6,5886	8,6207
Federal university	Private university	-6,98539(*)	,62181	,000	-8,5084	-5,4623
	State university	-7,60467(*)	,41482	,000	-8,6207	-6,5886

Table 7.7a (ii): Multiple Comparisons for Curriculum in Action Across University Type

Dependent Variable: Curriculum in Action
Scheffe

University Type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	85,8406	5,40430	,34112	85,1688	86,5125	66,00	104,00
State university	761	86,4599	9,22376	,33436	85,8035	87,1163	53,00	113,00
Federal university	1209	78,8553	9,38002	,26977	78,3260	79,3845	46,00	111,00
Total	2221	82,2503	9,70053	,20584	81,8467	82,6540	46,00	113,00

* The mean difference is significant at the .05 level.

With regards the student's evaluation of curriculum in action across gender, there seems to be no significant differences. Both males and females evaluated the curriculum in action the same way.

Now concerning the same evaluation across levels of study, there exist borderline differences between the final level of study and the 1st level level of study (mean diff. = 2.34) and also between the final level of study and the 2nd level of study (mean diff. = 2.37). The difference is greater between the final level and the 1st level and as aresult of the mean value (83.49), it is evident that the final year level students evaluated the curriculum in action dimension

better than students from either 1st, 2nd or 3rd year level of studies. See table 7.7b (i) and 7.7b (ii) below for details:

Table 7.7.7b (i): Descriptive Statistics for Curriculum in Action Across Level of Study

Curriculum in Action

Level of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
First year student	323	81,1424	9,16133	,50975	80,1396	82,1453	53,00	105,00
Second year student	454	81,1123	8,73769	,41008	80,3064	81,9182	54,00	107,00
Third year student	710	82,2000	10,16490	,38148	81,4510	82,9490	46,00	111,00
Final year student	734	83,4905	9,90538	,36561	82,7727	84,2082	55,00	113,00
Total	2221	82,2503	9,70053	,20584	81,8467	82,6540	46,00	113,00

Table 7.7b (ii): Multiple Comparisons for Curriculum in Action across Level of Study

Dependent Variable: Curriculum in Action
Scheffe

(I) Indicate level of study	(J) Indicate level of study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
First year student	Second year student	,03008	,70301	1,000	-1,9367	1,9968
	Third year student	-1,05759	,64819	,447	-2,8710	,7558
	Final year student	- 2,34805(*)	,64486	,004	-4,1521	-,5440
Second year student	First year student	-,03008	,70301	1,000	-1,9968	1,9367
	Third year student	-1,08767	,58036	,319	-2,7113	,5360
	Final year student	- 2,37813(*)	,57665	,001	-3,9914	-,7649
Third year student	First year student	1,05759	,64819	,447	-,7558	2,8710
	Second year student	1,08767	,58036	,319	-,5360	2,7113
	Final year student	-1,29046	,50838	,092	-2,7127	,1318
Final year student	First year student	2,34805(*)	,64486	,004	,5440	4,1521
	Second year student	2,37813(*)	,57665	,001	,7649	3,9914
	Third year student	1,29046	,50838	,092	-,1318	2,7127

* The mean difference is significant at the .05 level.

There also exist borderline difference in the student's evaluation of curriculum in action across the course of study. Differences are significant (0.05 level) between chemical sciences and mathematical sciences (mean diff.= 1.93) and biological sciences and mathematical sciences (mean diff. = 1.99). The

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difference in the students' evaluation of curriculum in action across course study is greater between the biological and mathematical sciences (mean diff. = 1.99). Following the mean value of (82.79), it is obvious that students from the biological sciences evaluated the curriculum in action better than students from the remaining four courses of study. For details, see tables 7.7c (i) and 7.7c (ii) below:

Table 7.7c (i): Descriptive Statistics for Curriculum in Action Across Course of Study

Curriculum in Action

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	82,7353	9,52387	,34479	82,0584	83,4121	56,00	113,00
Biological Sciences	526	82,7985	9,30260	,40561	82,0017	83,5953	54,00	107,00
Computer Sciences	334	82,4132	9,48730	,51912	81,3920	83,4343	54,00	105,00
Mathematical Sciences	569	80,8049	10,24174	,42936	79,9616	81,6482	46,00	111,00
others	29	86,0345	10,09060	1,87378	82,1962	89,8727	53,00	107,00
Total	2221	82,2503	9,70053	,20584	81,8467	82,6540	46,00	113,00

Table 7.7c (ii): Multiple Comparisons for Curriculum in Action Across Course of Study

Dependent Variable: Curriculum in Action
Scheffe

(I) course Study	(J) course Study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	-,06322	,54767	1,000	-1,7516	1,6252
	Computer Sciences	,32208	,63404	,992	-1,6326	2,2767
	Mathematical Sciences	1,93033(*)	,53528	,011	,2802	3,5805
	others	-3,29923	1,82832	,516	-8,9356	2,3371
Biological Sciences	Chemical Sciences	,06322	,54767	1,000	-1,6252	1,7516
	Computer Sciences	,38531	,67614	,988	-1,6991	2,4697
	Mathematical Sciences	1,99356(*)	,58453	,021	,1916	3,7956
	others	-3,23600	1,84334	,544	-8,9187	2,4467
Computer Sciences	Chemical Sciences	-,32208	,63404	,992	-2,2767	1,6326
	Biological Sciences	-,38531	,67614	,988	-2,4697	1,6991
	Mathematical Sciences	1,60825	,66614	,213	-,4453	3,6618
	others	-3,62131	1,87082	,442	-9,3887	2,1461
Mathematical Sciences	Chemical Sciences	-1,93033(*)	,53528	,011	-3,5805	-,2802
	Biological Sciences	-1,99356(*)	,58453	,021	-3,7956	-,1916
	Computer Sciences	-1,60825	,66614	,213	-3,6618	,4453
	others	-5,22956	1,83970	,089	-10,9010	,4419
others	Chemical Sciences	3,29923	1,82832	,516	-2,3371	8,9356
	Biological Sciences	3,23600	1,84334	,544	-2,4467	8,9187
	Computer Sciences	3,62131	1,87082	,442	-2,1461	9,3887
	Mathematical Sciences	5,22956	1,83970	,089	-,4419	10,9010

* The mean difference is significant at the .05 level.

Finally on curriculum in action, there exist strong significant differences in the students evaluation of curriculum in action across university generation. These differences are significant (0.05 levels) between 3rd generation and 1st generation universities (mean diff. = 5.84), between 3rd generation and 2nd generation universities (mean diff. = 6.16), between 4th generation and 1st generation universities (mean diff. = 7.44), between 4th generation and 2nd generation universities (mean diff. = 7.76), between 5th generation and 1st generation universities (mean diff. = 6.36) and finally between 5th generation and 2nd generation universities (mean diff. = 6.68). See tables 7.7d(i) and 7.7d(ii) below:

Table 7.7d (i): Descriptive Statistics for Curriculum in Action Across University Generation

Curriculum in Action

University Generation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	78,6544	7,66154	,42368	77,8209	79,4879	59,00	105,00
second generation universities	627	78,3381	9,78836	,39091	77,5705	79,1058	46,00	107,00
third generation universities	615	84,5024	10,12188	,40815	83,7009	85,3040	53,00	113,00
fourth generation univeristies	403	86,1042	7,43121	,37018	85,3765	86,8319	55,00	111,00
fifth generation universities	249	85,0241	8,94379	,56679	83,9078	86,1404	54,00	105,00
Total	2221	82,2503	9,70053	,20584	81,8467	82,6540	46,00	113,00

Table 7.7d (ii): Multiple Comparisons for Curriculum in Action Across University Generation

Dependent Variable: Curriculum in Action
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	,31632	,62167	,992	-1,6002	2,2328
	third generation universities	-5,84800(*)	,62374	,000	-7,7709	-3,9251
	fourth generation univeristies	-7,44978(*)	,67831	,000	-9,5409	-5,3587
	fifth generation universities	-6,36966(*)	,76653	,000	-8,7327	-4,0066
second generation universities	first generation universities	-,31632	,62167	,992	-2,2328	1,6002
	third generation universities	-6,16432(*)	,51723	,000	-7,7588	-4,5698
	fourth generation univeristies	-7,76610(*)	,58187	,000	-9,5599	-5,9723
	fifth generation universities	-6,68598(*)	,68267	,000	-8,7905	-4,5814
third generation universities	first generation universities	5,84800(*)	,62374	,000	3,9251	7,7709
	second generation universities	6,16432(*)	,51723	,000	4,5698	7,7588
	fourth generation univeristies	-1,60178	,58408	,111	-3,4024	,1988
	fifth generation universities	-,52166	,68456	,965	-2,6320	1,5887
fourth generation univeristies	first generation universities	7,44978(*)	,67831	,000	5,3587	9,5409
	second generation universities	7,76610(*)	,58187	,000	5,9723	9,5599
	third generation universities	1,60178	,58408	,111	-,1988	3,4024
	fifth generation universities	1,08012	,73462	,706	-1,1846	3,3448
fifth generation universities	first generation universities	6,36966(*)	,76653	,000	4,0066	8,7327
	second generation universities	6,68598(*)	,68267	,000	4,5814	8,7905
	third generation universities	,52166	,68456	,965	-1,5887	2,6320
	fourth generation univeristies	-1,08012	,73462	,706	-3,3448	1,1846

* The mean difference is significant at the .05 level.

7.3.3 Learned Curriculum Variation

From the analysis of learned curriculum, there exist significant differences of student's evaluations across all the variables except the variable level of study. Student's evaluation of learned curriculum varies across university type. There exist strong significant differences (0.05 levels) between state universities and private universities (mean diff. = 2.67) and also between state universities and federal universities (mean diff. = 2.87). The difference is greater between state and federal universities and by considering the high mean value (), it becomes obvious that the students from the state university evaluated the learned curriculum better than students from both private and federal universities. See tables 7.8a (i) and 7.8a (ii) below for more details:

Table 7.8a (i): Descriptive Statistics for Learned Curriculum Across University Type

Learned Curriculum

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Private university	251	45,2948	4,38825	,27698	44,7493	45,8403	32,00	65,00
State university	761	47,9685	5,90531	,21407	47,5482	48,3887	13,00	65,00
Federal university	1209	45,0984	8,07853	,23234	44,6426	45,5543	13,00	65,00
Total	2221	46,1040	7,17186	,15218	45,8056	46,4024	13,00	65,00

Table 7.8a (ii): Multiple Comparisons for Learned Curriculum Across University Type

Dependent Variable: Learned Curriculum
Scheffe

Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Male	1420	46,3697	7,30291	,19380	45,9896	46,7499	13,00	65,00
Female	801	45,6330	6,91286	,24425	45,1535	46,1124	18,00	65,00
Total	2221	46,1040	7,17186	,15218	45,8056	46,4024	13,00	65,00

* The mean difference is significant at the .05 level.

Also there exist significant difference in the student's evaluation of learned curriculum between males and females, with the females evaluating the learned curriculum better than the males. See tables 7.8b (i) and 7.8b (ii) below for details:

Table 7.8b (i): Descriptive Statistics Learned Curriculum Across Gender

Learned Curriculum

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	277,987	1	277,987	5,415	,020
Within Groups	113908,988	2219	51,333		
Total	114186,974	2220			

Table 7.8b (ii): ANOVA for Learned Curriculum Across Gender

Learned Curriculum

(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Private university	State university	-2,67364(*)	,51296	,000	-3,9301	-1,4172
	Federal university	,19639	,48882	,922	-1,0009	1,3937
State university	Private university	2,67364(*)	,51296	,000	1,4172	3,9301
	Federal university	2,87003(*)	,32610	,000	2,0713	3,6688
Federal university	Private university	-,19639	,48882	,922	-1,3937	1,0009
	State university	-2,87003(*)	,32610	,000	-3,6688	-2,0713

While no significant difference in the student's perception of learned curriculum across level of study, there exist borderline significance of student's evaluation of learned curriculum across course of study. Differences are significant (0.05 levels) between the course category "others" and chemical sciences (mean diff. = 5.18), between "others" and biological sciences (mean diff. = 5.52), between "others and computer sciences (mean diff. = 6.11) and finally between "others" and mathematical sciences (mean difference = 5.87). The difference is greater between the course category "others" and computer sciences. Because of the high value of mean (51.62), it is obvious that students from the course category "others" evaluated learned curriculum better than students from the remaining four courses of studies. For more details see tables 7.8c (i) and 7.8c (ii) below:

Table 7.8c (i): Descriptive Statistics for Learned Curriculum Across Course of Study

Learned Curriculum

Course of Study	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
Chemical Sciences	763	46,4312	7,23736	,26201	45,9168	46,9455	18,00	65,00
Biological Sciences	526	46,0913	6,89757	,30075	45,5004	46,6821	13,00	64,00
Computer Sciences	334	45,5030	6,89246	,37714	44,7611	46,2449	18,00	65,00
Mathematical Sciences	569	45,7487	7,39564	,31004	45,1397	46,3576	13,00	65,00
others	29	51,6207	6,68908	1,24213	49,0763	54,1651	38,00	62,00
Total	2221	46,1040	7,17186	,15218	45,8056	46,4024	13,00	65,00

Table 7.8c (ii): Multiple Comparisons for Learned Curriculum Across Course Study

Dependent Variable: Learned Curriculum
Scheffe

(I) course Study	(J) course Study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Chemical Sciences	Biological Sciences	,33994	,40475	,951	-,9078	1,5877
	Computer Sciences	,92820	,46858	,417	-,5163	2,3727
	Mathematical Sciences	,68251	,39559	,562	-,5370	1,9020
	others	-5,18950(*)	1,35118	,005	-9,3549	-1,0240
Biological Sciences	Chemical Sciences	-,33994	,40475	,951	-1,5877	,9078
	Computer Sciences	,58826	,49968	,847	-,9522	2,1287
	Mathematical Sciences	,34257	,43199	,960	-,9892	1,6743
	others	-5,52943(*)	1,36228	,003	-9,7291	-1,3298

Computer Sciences	Chemical Sciences	-,92820	,46858	,417	-2,3727	,5163
	Biological Sciences	-,58826	,49968	,847	-2,1287	,9522
	Mathematical Sciences	-,24569	,49230	,993	-1,7633	1,2720
	others	-6,11770(*)	1,38259	,001	-10,3800	-1,8554
Mathematical Sciences	Chemical Sciences	-,68251	,39559	,562	-1,9020	,5370
	Biological Sciences	-,34257	,43199	,960	-1,6743	,9892
	Computer Sciences	,24569	,49230	,993	-1,2720	1,7633
	others	-5,87201(*)	1,35959	,001	-10,0634	-1,6806
others	Chemical Sciences	5,18950(*)	1,35118	,005	1,0240	9,3549
	Biological Sciences	5,52943(*)	1,36228	,003	1,3298	9,7291
	Computer Sciences	6,11770(*)	1,38259	,001	1,8554	10,3800
	Mathematical Sciences	5,87201(*)	1,35959	,001	1,6806	10,0634

* The mean difference is significant at the .05 level.

Finally on the learned curriculum, there exist strong sifnificant difference (0.05 levels) in the student's evaluation of learned curriculum across university generation. Differences occurred between 2nd generation and 1st generation universities (mean diff. = 5.50), between 3rd generation and 1st generation (mean diff. = 6.56), between 4th generation and 1st generation universities (mean diff. = 5.98) and finally between 5th generation and 1st generation universities (mean diff. = 6.46). The difference is greater between 3rd generation and 1st generation universities, and going by the highest mean value (), it is obvious that the students of the 3rd generation universities evaluated learned curriculum better than the remaining university generations. See details in tables 7.8d (i) and 7.8d (ii) below:

Table 7.8d (i): Descriptive Statistics for Learned Curriculum Across University Generation

Learned Curriculum

University Generation	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
first generation universities	327	40,9205	8,22497	,45484	40,0257	41,8153	23,00	65,00
second generation universities	627	46,4290	7,52499	,30052	45,8389	47,0192	13,00	65,00
third generation universities	615	47,4829	6,11155	,24644	46,9990	47,9669	14,00	65,00
fourth generation univeristies	403	46,9057	5,37509	,26775	46,3793	47,4321	33,00	64,00
fifth generation universities	249	47,3896	6,79338	,43051	46,5416	48,2375	13,00	65,00
Total	2221	46,1040	7,17186	,15218	45,8056	46,4024	13,00	65,00

Table 7.8d (ii): Multiple Comparisons for Learned Curriculum Across

University Generation

Dependent Variable: Learned Curriculum
Scheffe

(I) university generation category	(J) university generation category	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
first generation universities	second generation universities	-5,50854(*)	,46617	,000	-6,9456	-4,0714
	third generation universities	-6,56244(*)	,46772	,000	-8,0043	-5,1205
	fourth generation univeristies	-5,98522(*)	,50864	,000	-7,5533	-4,4172
	fifth generation universities	-6,46907(*)	,57479	,000	-8,2411	-4,6971
second generation universities	first generation universities	5,50854(*)	,46617	,000	4,0714	6,9456
	third generation universities	-1,05390	,38785	,117	-2,2496	,1418
	fourth generation univeristies	-,47668	,43632	,879	-1,8218	,8684
	fifth generation universities	-,96053	,51191	,475	-2,5387	,6176
third generation universities	first generation universities	6,56244(*)	,46772	,000	5,1205	8,0043
	second generation universities	1,05390	,38785	,117	-,1418	2,2496
	fourth generation univeristies	,57722	,43798	,784	-,7730	1,9274
	fifth generation universities	,09337	,51333	1,000	-1,4891	1,6759
fourth generation univeristies	first generation universities	5,98522(*)	,50864	,000	4,4172	7,5533
	second generation universities	,47668	,43632	,879	-,8684	1,8218
	third generation universities	-,57722	,43798	,784	-1,9274	,7730
	fifth generation universities	-,48385	,55087	,942	-2,1821	1,2144
fifth generation universities	first generation universities	6,46907(*)	,57479	,000	4,6971	8,2411
	second generation universities	,96053	,51191	,475	-,6176	2,5387
	third generation universities	-,09337	,51333	1,000	-1,6759	1,4891
	fourth generation univeristies	,48385	,55087	,942	-1,2144	2,1821

* The mean difference is significant at the .05 level.

CHAPTER EIGHT
ANALYSIS AND PRESENTATION OF RESULTS

Relational and Correlation Criterion:

8.1 Introduction

Having performed some series of analysis of variance and examining variations at different levels of aggregation in the perceived quality of teaching and learning, we want to examine some relationships or correlation between scores on the scale and sub-scales of our course experience instrument.

We want to test the degree of relation between scores on the scales and sub-scales of our course experience instrument on the basis of the quality dimensions proposed in this study which is also in conjunction with what Biggs, (1979) and Biggs, (1985) called three stage model of student learning involving interaction of presage; cited in Wilson et.al., 1997. In his relational work, he based on presage to aspects of the learning environment measured by the CEQ, presage to process criteria (approaches to learning) and presage to product criteria (learning outcomes such as satisfactions, academic achievements and generic skills).

We will also operate in a similar but a little bit different approach that will reflect his work and still echo out the three dimension proposed in this study. Therefore, we shall test the relationships based on the intended curriculum (aspects of the learning environment measured by our course experience instrument), curriculum in action (which involves learning strategies) and the learned curriculum (which involves learning outcomes such as satisfaction with course and generic skills).

In this chapter therefore, section 8.1 is concerned with the introduction; section 8.2 talks about the quality dimension inter-relationships, where the inter-relationships between the quality dimensions (scales) and the sub-scales are considered. Section 8.3 explains the relationship between the learning strategies and the sub-scales of the course experience instrument. Section 8.4 explains the relationship between the generic skills and the sub-scales of the course experience instrument and finally section 8.5 explains the relationship between satisfaction with course and the sub-scales of the course experience instrument.

8.2 Quality Dimension (scale) Inter-relationships

This sub-section tries to give answers to the research question below:
3. Considering the three dimensions of quality presented in the model; (quality of intended curriculum, quality of curriculum in action and quality of learned curriculum). How do these quality dimensions inter- relate with one another and with the student's general perception of their course?
"Student's general perception of their courses" here means the student's score on each sub-scale of the instrument; that is to say, the aggregate of each item under each sub-scale of the instrument

In this section, we examined the relationships between the quality dimensions proposed in this study; or simply put, the relationship between the scales of the course experience instrument. The analysis revealed that there exist significant positive correlations between the three quality dimensions. The correlation is strongest between the intended curriculum dimension and the curriculum in action dimension (0.52). While the correlation is moderate (0.39) between the curriculum in action and learned curriculum, it is weak between intended curriculum and learned curriculum. In a nut shell, there is an inter-relationship that is positively significant between the three dimensions of quality proposed in this study. See table 8.1(a) below for more details:

Table 8.1(a): Correlations Between the Dimensions of Quality (Intended curriculum, Curriculum in Action and Learned Curriculum)

Sub-scales of Course Experience Instrument	Intended curriculum	Curriculum in Action	Learned Curriculum
Intended Curriculum	1	0.52**	0.21**
Curriculum in Action		1	0.39**
Learned Curriculum			1

*n =2,221; ** correlation is significant at 0.01 level (2-tailed). Correlations≥ 0.20 are used for interpretations of results*

Correlation analysis was also conducted to test the degree of relation between the above quality dimensions and the sub-scales of the course experience instrument (student's general perception of their course).
All most all the course experience sub-scales evidenced significant positive correlations with the intended curriculum except for appropriate assessment

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and surface learning strategy which exhibited some significant negative correlations and emphasis on independence which showed a value (0.10) which was below the acceptable empirical values of (0.20) even though it was still significant.

Similarly, most sub-scales showed a positive significant correlation with curriculum in action, except for appropriate assessment and surface learning strategy again. Two sub-scales, appropriate assessment and generic skills have no correlation or relationship with curriculum in action.

The correlation between the sub-scales and the learned curriculum are all significantly positive even in the appropriate assessment and surface learning sub-scales. It was only negative and below the acceptable limits in the appropriate workload sub-scale.

While clear goals (0.56) and course level resources and facilities (0.88) are highly related with intended curriculum; good teaching (0.83), emphasis on independence (0.48) and appropriate workload are highly correlated with curriculum in action; generic skills (0.78) and deep leaning strategy (0.75) on the other hand, are highly related with learned curriculum. For more details, see table 8.1 (b) below:

Table 8.1(b): Correlations Between the Dimensions of Quality (scales) and Course Experience Instrument Sub-scales.

Sub-scales of Course Experience Instrument	Intended curriculum	Curriculum in Action	Learned Curriculum
Clear Goals	0.56**	0.53**	0.33**
Course Level Resources & facilities	0.88**	0.35**	0.077**
Good Teaching	0.62**	0.83**	0.34**
Emphasis on Independence	0.10**	0.48**	0.20**
Appropriate Workload	0.31**	0.45**	-0.10**
Appropriate Assessment	-0.29**	-0.38	0.23**
Surface Learning	-0.18**	-0.08**	0.44**
Deep Learning	0.25**	0.38**	0.75**
Generic skills	0.036**	0.48	0.78**

n =2,221; ** correlation is significant at 0.01 level (2-tailed). Correlations ≥ 0.20 are used for interpretations of results.

8.3 Learning Strategies Inter-relationships.

This subsection trie to answer the research question below:

4. How does the student's general perception of their course and learning environment influence learning strategy?

Correlational analyses, using data from the main study questionnaire, were conducted between student's general perception of their course (measured by the sub-scales of the course experience instrument) and reported strategies to learning (measured by the surface and deep learning sub-scales of the curriculum in action scale in the course experience instrument).

All most all the sub-scales of the student course experience instrument evidenced significant positive correlations with a deep learning strategy except for the appropriate assessment sub-scale, which was not correlated at all with deep learning strategy. This implies that the way the student's perceived the quality of aspects of their courses influences the learning strategy they will adopt.

On the other hand, almost all the sub-scales of the student course experience instrument evidenced significant negative correlation with a surface learning strategy except for emphasis on independence and appropriate assessment sub-scales from curriculum in action scale, which were positively correlated with surface learning strategy.

Deep learning strategy was related most strongly to generic skills, good teaching and clear goals while on the other hand surface learning strategy was related most strongly to appropriate assessment, appropriate workload and emphasis on independence. This suggest that students perceived that for a better acquisition of generic skills, with a better availability of good teaching and the understanding of clear goals they must adopt a deep learning strategy. On the other hand, inappropriate assessment, heavy workload and unnecessary independence can lead to adoption of a surface learning strategy.

Another observation that is worth mentioning here is the dual exact correlation of the course level resources and facilities sub-scale with surface and deep learning strategy. This sub-scale correlated at the same magnitude of correlation - 0.07 with the surface learning strategy and 0.07 with the deep learning strategy. This suggests that the more there are availability of course level resources and facilities the more the students are likely to adopt a deep learning strategy and the less the availability of course level resources and facilities the more they are likely to adopt a surface learning strategy and vice-versa.

Although a vast number of the correlations were small (i.e. below the empirically accepted value of ≥ 0.20), they were statistically significant

probably due to the large sample sizes, yet the results are consistent with previous findings like those of Trigwell &Prosser, (1991) and Wilson et.al., (1997) which states that the student course experience instrument is a measure of quality of aspects of teaching environment which are systematically associated with student's reported learning strategies.

In comparison with previous studies in this area, it is clear that the result of this present study is consistent for the fact that it was able to produce a pattern in which one dimension of the student's course experience instrument related positively with deep learning strategy and the other dimension of the student's course experience instruments with the surface learning strategy. A result that is consistent with those of Trigwell &Prosser, (1991) and Wilson et.al., (1997). For more details, see table 8.2 below:

Table 8.2: Correlations Between the Surface and Deep Learning Strategies and the Sub-scales of the Course Experience Instrument Compared with Results from Wilson et.al., 1997 and Trigwell & Prosser, 1991 (cited in Wilson et. al., 1997).

Sub-scales of Course Experience Instrument	Surface learning strategy			Deep learning strategy		
	Trigwell &Prosser, (1991)	Wilson et.al., (1993 student sample)	Present Study	Trigwell &Prosser, (1991)	Wilson et.al., (1993 student sample)	Present Study
Clear Goals	-0.24	-0.29	-0.26**	0.10	0.12	0.41**
Course Level Resources	-	-	-0.07**	-	-	0.07**
Good Teaching	-0.10	-0.34	-0.29**	0.15	0.24	0.43**
Emphasis on Independence	-0.27	-0.29	0.19**	0.02	0.19	0.05**
Appropriate Workload	-0.45	-0.48	-0.35**	0.04	0.07	0.04*
Appropriate Assessment	-0.43	-0.47	0.51**	0.17	0.21	0.01
Generic Skills	-	-0.20	-0.10**	-	0.37	0.62**

*n =2,221; ** correlation is significant at 0.01 level*
* correlation is significant at 0.05 (2-tailed).
Correlations ≥ 0.20 are used for interpretations of results

8.4 Generic Skills inter-relationships

This sub-section tries to answer the research question below:

5. Are the skills acquired influenced by the student's general perception of their course and learning environment?

Correlational analyses, using data from the main study questionnaire, were conducted between student's general perception of their course (measured by the sub-scales of the course experience instrument) and reported general skills acquired by the students during the course of their studies (measured by the generic skill sub-scale of learned curriculum scale in the course experience instrument).

Significant positive correlations were found between almost all sub-scales of the course experience instrument and generic skills, except for the appropriate assessment sub-scale, which depicted a significant negative correlation with generic skills. This implies that there exist a relationship between the way the students perceived their courses and the general skills they obtained from it. In order words, they way students perceived the quality of aspects of their courses have an influence on the skills they obtained from those courses. The stronger their perception about the quality of aspects of their courses, the better skills they acquire in those aspects of their courses.

The correlations or relations between generic skills and general perception of course are stronger (0.55, 0.51) in the good teaching sub-scale of curriculum in action and clear goals sub-scale of intended curriculum respectively. This suggests that those students who perceived good teaching and clear goals favorable were likely to acquire general skills than those who do not.

The appropriate workload sub-scale of curriculum in action demonstrated a lower (0.10) correlation with generic skills, implying that the less appropriate the workload is, the less the generic skills acquired. These results were consistent with and stronger than those obtained by Wilson et.al., 1997. For more details see the comparative results in table 8.4 below:

Table 8.3: Correlations between Generic Skills and the Sub-scales of the Course Experience Instrument compared with results from Wilson et.al., 1997

Sub-scales of Course Experience Instrument	Generic skills			
	Wilson et.al., (1993 student sample)	Wilson et.al., (1994 student sample)	Wilson et.al., (1992 graduate sample)	Present study
Clear Goals	0.33	0.30	0.29	0.51**
Course Level Resources	-	-	-	0.14**
Good Teaching	0.46	0.48	0.40	0.55**
Emphasis on Independence	0.41	0.40	-	0.12**
Appropriate Workload	0.16	0.15	0.02	0.10**
Appropriate Assessment	0.35	0.37	0.20	-0.08**

*n =2,221; ** correlation is significant at 0.01 level,*
Correlations ≥ 0.20 are used for interpretations of results

8.5 Overall Satisfaction inter-relationships

This sub-section tries to answer the research question below:

6. Does the general perception of course and learning environment influence or relates to student's satisfaction with course?

Correlational analyses, using data from the main study questionnaire, were conducted between student's general perception of their course (measured

by the sub-scales of the course experience instrument) and reported general satisfaction with course. (Measured by the student's overall satisfaction with course item).

Correlations are positively significant between all the sub-scales of the course experience instrument and general satisfaction with course except for the appropriate assessment sub-scale of the curriculum in action. We see that the correlations between general satisfaction with course and general perception of the quality of aspects of the courses were stronger (0.66, 0.47) for generic skills sub-scale of learned curriculum and good teaching sub-scale of curriculum in action respectively. This suggests that students who perceive their teaching and acquisition of general skills favorable were more satisfied with their courses and those who perceive their teaching and acquisition of generic skills less favorable were less satisfied with their courses.

In contrast, the correlations between general satisfaction with course and general perception of the aspect of the courses were weaker (0.11) for emphasis on independence sub-scale of curriculum in action.

Subsequently, there exists a significant negative correlation (-0.12) between appropriate assessment and general satisfaction with course. This suggest that the higher or the tougher the assessment standard, the less satisfied the students will be with their courses.

In comparison with previous studies in this field, the results obtained in this present studies were considerably lower but than those obtained from Wilson et.al., 1997, yet they were significant and consistent with or they support the conclusions made by Wilson and his group. For more details, see table 8.5 below:

Table 8.4: Correlations between General Satisfaction with Course and the Sub-scales of the Course Experience Instrument compared with results from Wilson et.al., 1997

Sub-scales of Course Experience Instrument	General Satisfaction with course			
	Wilson et.al., (1993 student sample)	Wilson et.al., (1994 student sample)	Wilson et.al., (1992 graduate sample)	Present study
Clear Goals	0.55	0.55	0.50	0.42**
Course Level Resources	-	-	-	0.24**
Good Teaching	0.64	0.64	0.63	0.47**
Emphasis on Independence	0.54	0.51	-	0.11**
Appropriate Workload	0.33	0.36	0.17	0.14**
Appropriate Assessment	0.47	0.41	0.33	-0.12**
Generic Skills	0.50	0.51	0.47	0.66**

$n = 2,221$; ** correlation is significant at 0.01 level,
* Correlations ≥ 0.20 are used for interpretations of results

CHAPTER NINE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

9.1 Discussions

In this thesis we have studied and presented the student quality evaluation of aspects of their courses and learning environment, viz —a-viz teaching and learning in the Nigerian higher institutions, especially the university institutions. Our scope is to deal with specific problems in the context of student's evaluation of their experiences on different aspects of teaching and learning; especially the quality of aspects of their courses of studies and their learning environments, using the Student Course Evaluation Questionnaire (SCEQ). It is important to re-mention that items of the SCEQ used in this study were drawn from the CEQ36, CEQ30 and CEQ23 instruments which were developed and used in Ramsden, (1991) and Richardson, (1994).

In studying the student's evaluation of the qualityof aspects of their courses and learning environment in the Nigerian higher institutions, we presented three main dimensions of quality in which the studies was majorly broken down in to and they are: Intended curriculum, curriculum in action and learned curriculum. Each aspect of the courses and learning environments evaluated by the students fall under one of the three dimensions mentioned above and as such were considered sub-scales of the dimensions.

The first issue this study tried to handle was the issue of reliability of the items, sub-scales and scales in order to determine the internal consistency of the questionnaire used in this study. Reliability analysis for both the pilot and main study questionnaire demonstrated moderate to high level of internal consistency for all items and scales (see tables 5.1 & 5.4 for details).

Reliability coefficients for the original five scales and the newly added scales were consistent with those from Ramsden's, (1991) pilot study and Wilson et al., (1997); although some of the scales were marginally lower. While

marginally lower on some scales; nevertheless demonstrate acceptable levels of internal consistency.

Furthermore, both item and scale exploratory factor analysis of the instrument used in this study revealed structures and characteristics that follows or that is some how consistent with those found by Ramsden, (1991) and Wilson et al., (1997). Thus, we conclude based on this evidence that the instrument for this study sample is a reliable instrument. Hence, the instruments CEQ36, CEQ30 and CEQ23 instruments which were developed and used in Ramsden, (1991) pilot study and Richardson, (1994); and from where the items of the instrument for this study were drawn can also be applicable for use with Nigerian students.

In considering necessary policy environment and strategies for eliciting responses from the students of higher institutions which are the avowed engine of educational growth and development, responses of students from higher institutions regarding the quality of aspects of their courses and learning environments using the Student Course Evaluation Questionnaire (SCEQ) when managed properly can better help in the collection of data sets at different levels of aggregates to aid managerial judgments at either the institutional level or even at the national level of the education system as a whole. We therefore recommend having seen that the Student Course Experience Questionnaire can also be applicable for use with the Nigerian students; Policy makers should encourage the use of student course evaluation questionnaire for course evaluation in higher institutions during accreditation visits to these institutions by the members of the National Universities Commission (NUC).team.

The second issue considered in this thesis is the issue of variation of the student's evaluation of the quality of aspects of their courses and learning environments across various parameters or variables that explains these variations. Significant variations occurred across university type in all the nine sub-scales except emphasis on independence. Similar variations are also seen in the student's evaluation of aspects of their courses across levels of studies, course of studies and university generations.

Variations in the student's evaluation of aspects of their courses and their learning environments across university type was expected since the three types of universities are not the same, even though they are being monitored for standards by the same government body; the National Universities Commission (NUC). Some of the reasons that could cause differences in the student's evaluation of courses and learning environment across the types of universities is the geographical location and the major funding agents of these types of universities. While most of the federal universities and the private

universities are mostly located in the commercial cities of the country, the state universities were mostly located in the sub-urban areas. Also while most of the funding of the federal universities is done by the federal government the highest tier of government in Nigeria, the state universities were being funded by the state government which is a second and a lesser tier of government than the federal government and the private universities receives funding from individuals that are involved in the universities (i.e. the founders or the management of the private institutions and the students, who are the paying customers of the private universities).

These variations in location and in funding of the three types of universities can easily affect the quality of provision of services and facilities available to the universities which will in turn affect the student's perception of the quality of aspects of their courses and learning environments, hence their evaluation of these aspects. For example, from the mean values of the analysis of all the sub-scales of the instrument of this study across university types, the results revealed that students from the private universities evaluated themselves better in four out of nine subscales, while those from the state and federal universities evaluated themselves better in two and three out of nine sub-scales respectively. From the above, one might conclude that based on the results of this study, the private universities in Nigeria are better than both federal and state universities in those four aspects (clear goals, course level resources and facilities, good teaching and appropriate workload). This discovery might be true, since the students in the private universities are "paying customers" and the major funders of the institution, the management will make sure that they are provided with the best for their courses and their learning environment, besides privates higher institutions are mostly located in the cities; hence, their better evaluation of the quality of the aspects of their course and their learning environment than their counterparts from the federal and state universities.

Similarly, Richardson, (1994) and Ramsden, (1991a, 1991b) cited in Richardson, (1994) proved and concluded that departments teaching degree in the same subject in different institutions of higher education would vary in the quality of the experiences that they offer to their students. Therefore, the variation found in the student's evaluation of the quality of aspects of their courses and learning environment across the three types of university (private, state and federal universities) in this study is consistent with previous findings and studies.

With regards to the variation of the student's evaluation of the quality of aspects of their courses and learning environments across university generation, results revealed that students from the fifth generation

universities (universities approved and established between the years 2000 till date) evaluated themselves better in five out of nine sub-scales and those from second generation (universities approved and established between the years 1970 to 1979) and fourth generation (universities approved and established between the years 1990 to 1999) evaluated themselves better in two sub-scales out of nine each. Hence we are tempted to conclude that based on this study, students from the fifth generation universities in Nigeria evaluated the quality of aspects of their courses and learning environment better than the other university generations in five aspects (clear goals, course level resources and facilities, good teaching, deep learning strategy and generic skills).

Suffice to say that, the fifth generation universities are the newest generation universities, established mostly in this new millennium, the jet era in which there is more advancement in technology and most of these universities that made up the fifth generation universities in Nigeria are the private universities.

Therefore, it is not surprising that the same result is obtained as in the case of the types of universities, where the private universities evaluated the quality of the aspect of their causes and learning environments better than the federal and state universities; since most of the fifth generation universities are the private universities located in the cities and whose students are paying customers and so the universitie's management must do their best to deliver quality resources and services for teaching and learning.

The result obtained in this study with regards differences in university generations is in contrast to the results obtained by Ramsden, (1991), where he examined the extent to which differences in perceived quality of teaching across the Australian higher education sector in which an institution is located. In his findings, after controlling for the effects of field of study, there was no uniform differences found between the two main sectors (the first sector being universities established prior to 1987 and the second sector being universities established after 1987).

Perhaps the differences found across university generations in this study is as a result of the fact that there is a considerable time lag of at least ten years between each generation of university and the time lag between each generation of university is big enough to constitute differences in the quality of services rendered by the universities in their generations and general transformations in the face of an ever changing world of technology; Hence, the differences in student's evaluation of the quality of aspects of their courses and learning environments.

As a matter of fact, the differences in the student's evaluation of the quality of aspects of their courses and learning environment across their courses of study in this study were not much consistent with those obtained by Ramsden, (1991). According to Ramsden, (1991), all courses showed differences between institutions on at least one scale. Only three courses within the range of course of study described in this study showed significant difference in at least one sub-scale of the instrument. For example, students from the biological sciences evaluated better three sub-scales (clear goals, good teaching and generic skills) out of nine sub-scales. Those from computer sciences evaluated better one sub-scale (appropriate workload) out of nine sub-scales and the students from the course category "others" evaluated better five sub-scales (course level resources, appropriate assessment, emphasis on independence, surface learning strategy and deep learning).

Going by the result of this study, we will conclude that students from the course category "others" evaluated the quality of the aspect of their courses and learning environments better than those from the remaining course category in those five aspects (course level resources, appropriate assessment, emphasis on independence, surface learning strategy and deep learning). This result is expected because the course category "others" constitutes of courses outside the faculty of sciences and they are courses from more than one faculty, therefore, we are bound to expect something different about the student's evaluation of the quality of their courses and learning environment from the course category "others".

With reference to the variation across level of study, though this is a situation that is peculiar to this study only, yet we can deduce some important results that could be further elaborated in future studies. In studies like this we must expect variation in student's evaluation of the quality of their courses and learning environments across levels of their studies. Student's of higher levels are expected to evaluate their experiences with their courses and learning environment better than students of lower levels, since they have been longer in the system than those in levels below them. Results from this study therefore supported this expectation and those students from the final year level of studies evaluated better five sub-scales (clear goals, good teaching, appropriate workload, deep learning strategy and generic skills) out of the nine sub-scales of the instrument of this study while students from the first year level of studies evaluated better four out of the same nine sub-scales (course level resource and facilities, emphasis on independence, appropriate assessment and surface learning strategy.

Some interesting results to note here is, because the first year level students are new to the university system, they perceived the adoption of a surface learning strategy better than students from other levels of studies. On the

other hand, because the final year students have been in the university system for some considerable number of years, they evaluated clarity of goal and the adoption of a deep learning strategy better than the other levels of studies. The two intermediate levels of studies did not evaluate any sub-scale better than the other levels. The evaluation of the sub-scales is distributed between the two extremes. These two extreme distributions suggests that at the port of entry in to the university system, the student's perception of the quality of their courses is bound to be shallow due to a little understanding of the system at such stage, but as they advance in level of studies their perception about same aspects begins to change to a deeper one because they must have gained a better understanding of the system than when they began. This observation can as well be a basis for future research in to the ability of the Student Course Evaluation Questionnaire (SCEQ) to provide information about change or stability in student's perception of the quality of their courses and learning environment over time when a cohort of students is being considered from the first level of studies to the final level of studies in an institution.

While variations occurred in the variables above, there existed no significant variations across gender in all the sub-scales except for the appropriate assessment and the surface learning strategy. This could be ascribed to the fact that both male and female students from the same type of university, at the same level of studies, studying the same course are likely to consider most of the aspects of their course the same way except for the appropriate assessment and learning strategy.

The variation in the appropriate assessment and learning strategy across gender could also be attributed to the fact that issues of assessment and learning strategy and the approach of an individual to assessment and learning strategy may vary from individual to individual. If so, it could also vary from male student to female student. The way a female student adapts to a learning strategy and approaches examinations is certainly quite different from the way a male student will. Moreover, there have been records of gender disparity in many aspects of higher education in Nigeria. For example, in the aspect of accessibility and equity in higher education; there has been a standing gap between the male and the female students. Therefore in most of the higher institutions like the universities, there is more male representation than the females and this can surely affect and cause variation in any evaluation that is gender oriented in the Nigeria's university system.

The third issue considered in this study is the possibility of linking the use of the SCEQ to the traditional input, process and outcome dimensions of quality. This aspect is also an aspect that has been handled only in this study and further studies needs to be done in order to authenticate this link in the

popular use of the Course experience questionnaire for evaluating the quality of the aspects of teaching and learning.

Coming back to the link proposed between the SCEQ sub-scales and the three dimensions of quality in which the student's evaluation of the quality of aspects of their courses of studies and their learning environment has been categorized in to; we notice the following observations:

- Students from state universities evaluated better curriculum in action and learned curriculum dimensions while those from private universities evaluated better the intended curriculum dimension.

- In the case of the student's evaluation of the dimensions of quality across gender, male students evaluated better the curriculum in action and the learned curriculum and the female students evaluated better the intended curriculum.

- Students from the final year level of studies evaluated better the entire three dimensions (intended curriculum, curriculum in action and learned curriculum) better than those from the remaining levels of study.

- Similarly, students from the course study category "others" evaluated the entire three dimension intended curriculum, curriculum in action and learned curriculum) better than those from the remaining courses of studies.

- Finally, students from the 5th generation universities perceived intended curriculum better, those from the 4th generation evaluated better the curriculum in action while those from the 3rd generation universities perceived better the learned curriculum.

When we look carefully, we will consider that the pattern of results obtained from the student's evaluation of the sub-scales of the instrument across the variables university type, gender, level of study, course of study and university generation is almost repeated. For example, the better evaluation of intended curriculum by the private and 5th generation universities which are mostly made up of the private universities have been repeated. Also the better evaluation of curriculum in action and learned curriculum by students from state universities and students of 4th and 3rd generation universities which of course are mostly made up of the state universities has also been repeated. Another observation worth mentioning is the better evaluation of the entire three dimensions of quality of aspects of the course and learning environment

by the final year level students and the course of study category "others" which was also repeated.

These repetitions in the pattern of student's evaluation of the sub-scales of the instrument and the dimensions of quality of aspects of the course and learning environment across same variables suggest a strong link between the SCEQ and the traditional dimensions of quality viz (input, process and output) which in our case have been defined by intended curriculum, curriculum in action and learned curriculum. Further research is needed to ascertain the level and the scope of this link and the understanding of the best variable that can define input, process and output in higher education quality will be highly needed. This study only tries to open up a discussion along this line; there is a lot more work to be done in this aspect.

Fourthly, the strong significant inter-relationship or inter-correlation between the dimensions of the SCEQ and their strong significant relationship with each of the sub-scales of the SCEQ used in this study further strengthens our consideration of the SCEQ to be a valid, reliable and effective instrument for quality evaluation of teaching and learning in the Nigerian higher institutions. Furthermore, the relationship or correlation of the student's general perception measured by the SCEQ and some criteria like learning strategies, generic skills, and student's overall satisfaction with their course confirmed some beautiful previous results obtained by some researchers in this field.

In this study, correlations between student's general perception of their course and the adoption of a learning strategy revealed two dimensions; one dimension significantly relating some of the SCEQ sub-scales positively to deep learning strategy and the other dimension significantly relating some of the SCEQ sub-scales negatively to surface learning strategy. This may imply that, students who perceived their courses most favorably adopted a deep learning strategy and students who perceived their courses less favorable adopted a surface learning strategy. This finding is consistent with the findings of Ramsden, (1991), where the factor analysis of the scale totals indicated the presence of one dimension relating heavy workload and inappropriate assessment to superficial, reproductive study methods; and another linking good teaching and clear goals to approaches which aim at understanding.

Similarly, the results of the correlations between the student's general perception of their courses and the acquisition of generic skills revealed strong significant positive correlation in almost all the SCEQ sub-scales. Meaning that the more favorable student's perceived the aspect of their courses and learning environment, the better they are likely to acquire general skills. This finding is also in accordance with those of Wilson et al.,

(1997), where they found out that there existed a relationship between the way the students perceived their courses and the general skills they eventually obtain from it.

Finally, the results of the correlation between the student's general perception of their courses and the student's overall satisfaction with their courses revealed values that were considerably lower than those obtained from Wilson et.al., (1997) except for generic skills and good teaching, yet they were consistent with or they support the conclusions made by Wilson and his group. Students who perceive their teaching and acquisition of general skills favorable were more satisfied with their courses and those who perceive their teaching and acquisition of generic skills less favorable were less satisfied with their courses.

In conclusion therefore, the ways the student's generally perceive their course have an influence on their satisfaction with their courses. The more favorable they perceive the quality of their courses, the more satisfied they will be with their courses.

9.2 Conclusions and Recommendations

This study has shown that the student's evaluation of their experiences on different aspects of teaching and learning; especially their evaluation of the quality of aspects of their courses of studies and their learning environments has not been the same across higher institutions, especially the universities in Nigeria. In spite of the recent reforms that took place in the education sector in Nigeria and its effect on the universities in particular, it is still evident that the universities require necessary measures that will bring a radical transformation particularly in the aspect of student's evaluation of their experiences on different aspects of their courses and learning environments, viz-a-viz teaching and learning in Nigeria.

The measures necessary for the radical transformation of Nigerian universities in the aspect of student's evaluation of their experiences on different aspects of their courses and learning environment viz-a-viz teaching and learning must be rooted in policy environment which is focused on strategies for eliciting responses from students of higher institutions which are the avowed engine of future educational and economic growth and development of the country. Based on the findings in this study, we therefore recommend the following:

- Since the student's general perception of the quality of aspects of their courses and learning environment influences their learning strategies, learning outcomes and general satisfaction with their courses, the government through the federal ministry of education

should ensure that educational policies and regulations are aimed at implementing equal standards in higher institutions in Nigeria so as to create an enabling environment for students to perceive better the quality of the aspects of their courses and learning environment in order that their evaluation of teaching and learning can be used for quality assurance.

- Educational policies should be made to focus on national surveys–derived or evidence-based strategies on the basis of predictive indicators of subsequent performance on national indicators of teaching and learning for the distribution of funds to higher institutions in Nigeria in order to encourage higher institutions enhance their performances on such measures.

- The government should encourage special incentives (like academic scholarships and grants or loans) to be given to female students in higher institutions in order to eliminate the gender gap that existed between male and female participation in higher education; and be able to motivate and encourage female participation in higher education in Nigeria

- In order to monitor change in quality over time at various levels of academic organization- degree course, level of study, institution, and the whole national system, educational policies should be geared towards encouraging accumulation of time series data through the implementation of periodic standard national educational surveys that will incorporate the student's evaluation of the quality of aspects of their courses and their learning environment across all higher institutions in Nigeria.

- An independent educational body like that of the Graduate Careers Council of Australia (GCCA) should be formed in Nigeria to see to the issues of educational quality and standards in higher educational institutions, where by a standard nationally administered student course experience questionnaire will be used on a periodic basis to gather data that will provide higher institutions with a system wide information which they can use to make informed managerial judgments about the quality of the courses they are offering based on the student's evaluation of their courses and learning environments. In addition, such data can be

put in a form that can be readily used for higher education consumer judgments of quality.

- Since we have vital parastatals of the Federal Ministry of Education that oversees different categories of higher education in Nigeria, such as the National University commission (NUC) which oversees the affairs of the universities, the National Board for Technical Education (NBTE) which oversees the affairs of the polytechnics and the National Commission for Colleges of Education (NCCE) which oversees the affairs of the colleges of education. Sections should be formed within these parastatals solely for making sure that student's evaluation of the quality of aspects of their courses and their learning environment is being conducted on an annual or biennial basis in order to provide crucial information about course quality for funding agencies, the higher institutions they represent, prospective students and employers of graduates.

Even though the above strategies for eliciting responses from students of higher institutions are recommended, there are some problems that are peculiar with the implementation of recommendations of this sort in Nigeria. We call it the Nigerian factor or the Nigerian culture.

These Nigerian cultures or factors as the case may be, are nothing but the issues of policy instability which breeds incredibility. The question of instability and frequent changes in educational policies in Nigeria is the bane for educational development efforts. We have as many educational policies as there are governments in the country with the inability of a new administration to continue with education policies initiated by its predecessors. Many good educational policies are therefore put on the shelf; with projects not being fully implemented leading to their suspension and ultimate abandonment. What the educational system in Nigeria needs is stability of educational policies and goals. When educational policies and goals are stable, it becomes easier or feasible to play and manage with strategies.

Secondly, the issue of policy inconsistency over time and lack of genuine commitment on the part of the government and higher educational sector to the achievement of stated goals. Government's commitment should focus on the design and implementation of an effective strategy to arrest the deteriorating quality of teaching and learning in higher institutions in Nigeria, especially in the university system.

Thirdly, effective management and expansion of infrastructure in existing higher institutions must be given top and urgent priority attention in order to eliminate infrastructural shortages that now prevail everywhere in the higher institutions of learning in Nigeria.

Fourthly, government has a role to play in the development of higher education institutions through provision of enabling environment for both the students and the lecturers to engage in productive teaching, learning and research by the provision of generous incentives that will boost the morale of both the students and the lecturers. Government should sustain its drive to achieve a stable academic environment free of industrial strikes by ensuring that the lecturers wages and entitlements are paid as at when due. In the social front, government should provide security to life and properties on campuses by putting in place mechanism to combat crime and cultism on campuses of higher institutions in Nigeria.

There must be a frame work for monitoring implementations and evaluating performances in higher education. Higher education policy analysis and implementation should be strengthened and this entails reconciling planning with implementation and carrying out regular analysis of higher education specific issues.

Finally, thoughts for possible future research is the possibility of transforming and linking the student's course evaluation questionnaire in to a tool for total quality evaluation in the education system, just as it is the practice in companies and industries.

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APPENDIX

Appendix 1.1 : The Baldrige 2006 Education Criteria

The 2006 Education Criteria for the Baldrige award include 19 Criteria items and simple new questions. Providing the answers to the questions is challenging and gets at the core of how the organization or institution operates today, how prepared it is for the future and how it measure up. The criteria can help in aligning resources with approaches, such as the Plan-Do-Study-Act, Balance scorecard, and accreditation self-studies; improve student achievement, communication, productivity and effectiveness; and achieve strategic goals. The criteria are designed to help organizations/institutions use an integrated approach to organizational/institutional performance management that results in;

- Delivery of over-improving value to students and stakeholders, contributing to education quality and organizational/institutional stability.
- Improvement of overall organizational/institutional effectiveness and capabilities.
- Organizational/ institutional and personal learning.

The criteria are built on the following set of interrelated Core Values and Concepts;

- Visionary leadership.
- Learning – centered education
- Organizational/institutional and personal learning
- Valuing faculty, staff and partners
- Agility.
- Focus on the future
- Managing for innovation
- Management by fact
- Social responsibility
- Focus on results and creating values
- System perspective

The above values and concepts are embedded beliefs and behaviors found in high-performing organization/institutions. They are the foundation for integrating key results-oriented framework that creates a basis for action and feedback. The framework consist of seven (7) categories and it is referred to as the **'The Baldrige Education Criteria for Performance Excellence Framework'.** (See figure 2.4 below)

1. Leadership
2. Strategic planning
3. Student, stakeholder and market focus
4. Measurement, analysis and knowledge Management
5. Faculty and staff focus
6. Process management
7. Results

A system perspective as depicted below includes a senior leader's focus on strategic directions and on students and stakeholders. It means that a senior leader monitors, responds to, and manages performance based on results. A system perspective also includes the use of measures, indicators and educational knowledge to build key strategies. It also means linking these key strategies with key processes and aligning resources to improve overall performance and satisfy students and stakeholders. This implies managing a whole organization/institution, as well as its components, to achieve success. The (figure 2.4) below provides the framework connecting and integrating the categories. From top to bottom; the framework has the following basic elements:

- Organizational profile

The organizational profile (top of figure 2.4) sets the context for the way the organization/institution operates. The environment, key working relationships and strategic challenges serve as an overarching guide for the organizational performance management system.

- System operations

The system operations are composed of the six Baldrige categories in the (centre of appendix figure 1.1) and it defines the operations and the results achieved.

Appendix Figure 1.1 Baldrige Education Criteria for Performance Excellence Framework: A system Perspective

Organizational profile:
Environment, Relationships and Challenges

2 Strategic planning

5 Faculty and staff focus

1 Leadership

7 Results

3 Students, stakeholders and market focus

6 Process management

4 Measurement, Analysis, and Knowledge management
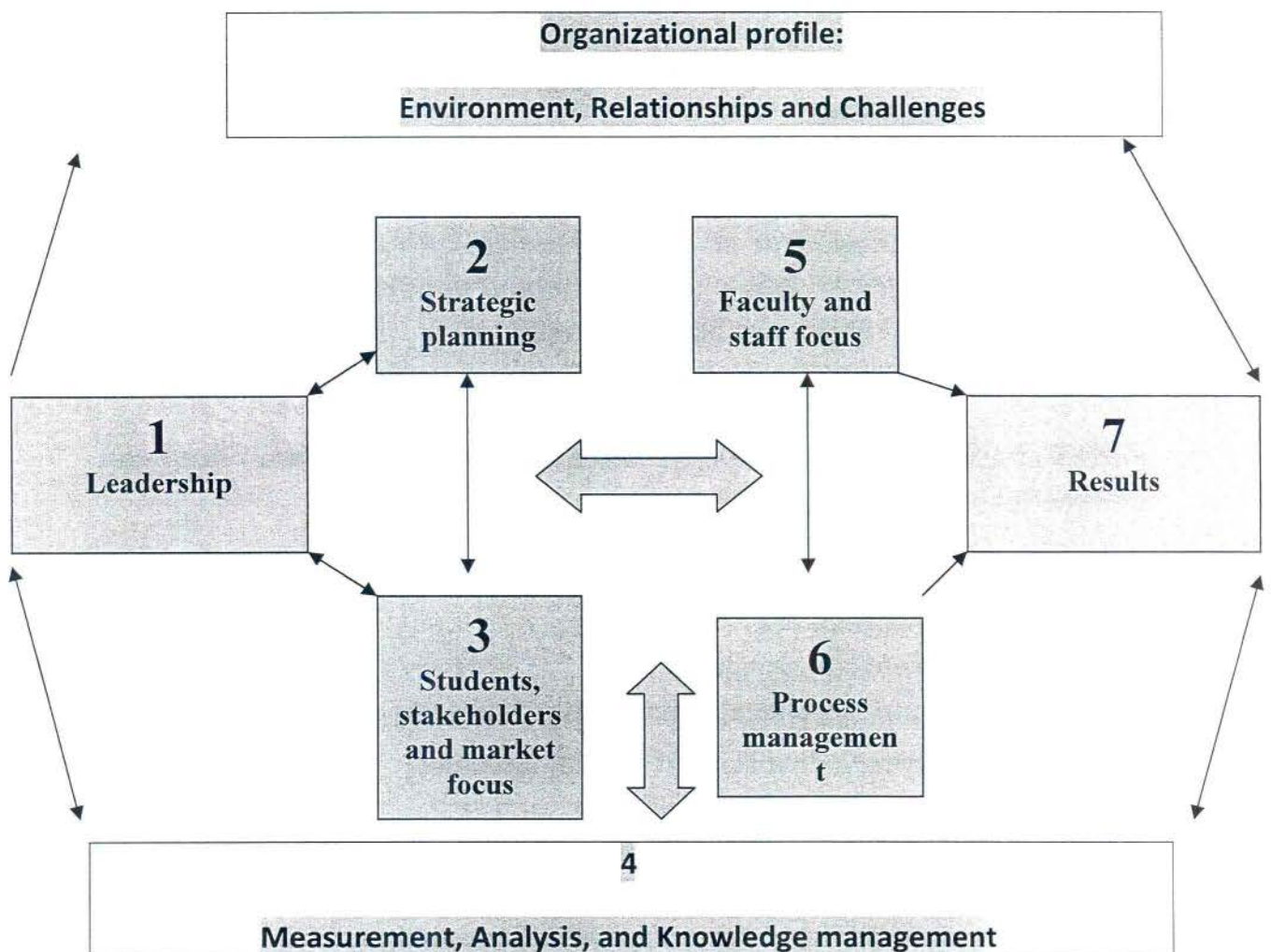
The leadership (category 1), strategic planning (category 2), and student, stakeholder and market focus (category3) represents the leadership triad. These categories emphasize the importance of a leadership focus on strategy and on students and stakeholders. Senior leaders set

organizational/institutional direction and seek future opportunity for the organization/institution.

Faculty and staff focus (category 5), process management (category 6) and results (category7), represents the results triad. These categories accomplish the work of the organization that yields the overall performance results.

The horizontal big arrow in the centre of (figure 2.4), links the leadership triad to the result triad, a linkage that is critical to organizational success. Furthermore, the arrow indicates the central relationship between leadership (category 1) and results (category 7) the two-headed arrows indicate the importance of feedback in an effective performance system.

- **System foundation**

Measurement, analysis, and knowledge management (category 4) are critical to the effective management of the organization/institution and to a fact-based, knowledge-driven system for improving performance. Measurement, analysis and knowledge management serve as a foundation for the performance management system.

Looking at the Baldrige education criteria for performance excellence, we identify the following key characteristics;

1. The criteria focus on results i.e. outcomes from the organizational performance areas. E.g.
   - Student learning outcomes
   - Student and stakeholder-focused outcomes
   - Budgetary, financial and market outcomes
   - Faculty and staff outcomes
   - Organizational/institutional effectiveness outcomes, including key internal operational performance measures
   - Leadership and social responsibility outcomes. The use of this composite of measures is intended to ensure that strategies are balanced i.e. they do not inappropriately trade off among important stakeholders, objectives, or short – and longer- term goals.
2. The criteria are non-prescriptive and adaptable. That is to say the criteria do not prescribe how organizations/institutions should be

structured, or whether it should have or not have department for quality, planning or other functions, nor the different units be managed the same way.

3. The criteria integrates key education themes such as;
   - Focus on teaching and learning, because these are the principal goals of education organizations.
   - Focus on the variation in individual organizational missions, roles and programs e.g. primary, secondary, engineering schools etc.
   - Students are the key customers of an education organization, but many stakeholders e.g. parents, employers etc.
   - The concept of excellence includes (a) a well-conceived and well-executed assessment strategy. (b) Year to year improvement in key measures and indicators of performance, especially student learning and (c) demonstrated leadership in performance and performance improvement relative to comparable organization and appropriate benchmarks.

4. The criteria support a system's perspective to maintaining organization-wide goal alignment, via feedback between process and results.

5. The criteria supports goal- based diagnosis.

From the brief overview of the Baldrige's education criteria for performance excellence, one could see that if educational institution can participate in this award, such assessments will lead to action that contributes to the improvement of education in all areas, there by achieving total quality in education.

Appendix Table 1.1: Pilot Study Sample
A: Inter-Item Correlation Matrix for clear goals

	Easy to know the standard of work expected of students	Clear idea of where one is going and what is expected of one	q7_reverse	Lecturers makes clear what is expected of students right from the start of the course	Course outline reflects new trends in scientific knowledge	Course outline allows for cross fertilization of knowledge across other disciplines
Easy to know the standard of work expected of students	1,000					
Clear idea of where one is going and what is expected of one	,349	1,000				
q7_reverse	,161	,177	1,000			
Lecturers makes clear what is expected of students right from the start of the course	,280	,195	,223	1,000		
Course outline reflects new trends in scientific knowledge	,070	,102	,197	,232	1,000	
Course outline allows for cross fertilization of knowledge across other disciplines	,119	,041	,050	,083	,317	1,000

- Where q7_reverse is the item "Aims and objectives of course not made clear" being reversed.

B: Inter-Item Correlation Matrix for Course Level Resource and Facilities Scale

	Classrooms and lecture theatre conducive for teaching and learning	Laboratories have enough facilities for the course	Laboratory attendants are extremely good in helping students in the laboratories	Available computers are adequate for the course	q15_reversed	Library condusive for reading, learning and research	Library Textbooks and materials are suitable for my course	Library textbooks and materials are easy to understand	q19_reversed	Internet facilities in the library for easy retrieval of information
Classrooms and lecture theatre conducive for teaching and learning	1,000									
Laboratories have enough facilities for the course	,486	1,000								
Laboratory attendants are extremely good in helping students in the laboratories	,255	,429	1,000							
Available computers are adequate for the course	,200	,416	,276	1,000						
q15_reversed	,165	,300	,104	,184	1,000					
Library conducive for reading, learning and research	,474	,309	,204	,214	,175	1,000				
Library Textbooks and materials are suitable for my course	,440	,412	,276	,285	,188	,537	1,000			
Library textbooks and materials are easy to understand	,358	,303	,316	,142	,150	,348	,545	1,000		
q19_reversed	,162	,194	,112	,063	,244	,148	,228	,157	1,000	
Internet facilities in the library for easy retrieval of information	-,088	-,125	,046	-,068	-,199	-,021	-,072	,010	-,210	1,000

- Where q15_reversed is the item "Access to computer not easy" being reversed.
- q19_reversed is the item "books and materials are outdated for my course" being reversed

C: Inter-Item Correlation Matrix for Good Teaching Scale

	Motivation by the lecturers to the students to do their best	Lecturers comments on student's work	Lecturers make real efforts to understand student's difficulty	Lecturers give feed back on how you are going	Lecturers are extremely good in their explanations	Lecturers work hard to make the course interesting	q27reversed	This course tries to get the best out of its students	Lecturers have a good practical knowledge of this course	Lecturers student ratio is appropriate
Motivation by the lecturers to the students to do their best	1,000									
Lecturers comments on student's work	,445	1,000								
Lecturers make real efforts to understand student's difficulty	,433	,554	1,000							
Lecturers give feed back on how you are going	,319	,367	,473	1,000						
Lecturers are extremely good in their explanations	,494	,428	,442	,305	1,000					
Lecturers work hard to make the course interesting	,461	,413	,473	,346	,596	1,000				
q27reversed	,108	,111	,040	,049	,095	,126	1,000			
This course tries to get the best out of its students	,273	,231	,213	,213	,270	,279	,100	1,000		
Lecturers have a good practical knowledge of this course	,367	,283	,304	,185	,421	,455	,102	,373	1,000	
Lecturers student ratio is appropriate	,303	,241	,230	,309	,162	,223	,059	,128	,231	1,000

- Where q27_reversed is the item "lecturers show no interest in what students have to say" being reversed

D: Inter-Item Correlation Matrix for Emphasis on Independence scale

	q31_rev ersed	The course has encourag ed me to develop my own academic interest	Students have great deal of choice over how to learn in this course	Students are given a lot of choice in the work they have to do	We often discuss with lecturers how we are going to learn this course	q36_rever sed
q31_reversed	1,000					
The course has encouraged me to develop my own academic interest	-,115	1,000				
Students have great deal of choice over how to learn in this course	-,035	,275	1,000			
Students are given a lot of choice in the work they have to do	,069	,134	,389	1,000		
We often discuss with lecturers how we are going to learn this course	,002	,156	,257	,381	1,000	
q36_reversed	,232	,121	,060	-,012	,008	1,000

- where q_31 reversed is the item "I have few opportunities to choose areas of studies" being reversed.
- And q36_reversed is the item "there is little choice in the way you are assessed in this course" being reversed.

E: Inter-Item Correlation Matrix for Appropriate Workload scale

	q37_reversed	q38_reversed	We are given enough time to understand what we have to learn	q40_reversed	q41_reversed
q37_reversed	1,000				
q38_reversed	,534	1,000			
We are given enough time to understand what we have to learn	,089	-,035	1,000		
q40_reversed	,375	,410	-,028	1,000	
q41_reversed	,254	,290	,096	,404	1,000

- where q37_reversed is the item "the workload in this course is too heavy" being reversed.
- where q38_reversed is the item "it seems the syllabus tries to cover too many topics" being reversed.
- where q40_reversed is the item "there is a lot of pressure on you as a student in this course" being reversed.
- where q41 reversed is the item "the volume of work to be done in this course can not be thoroughly comprehended" being reversed

F: Inter-Item Correlation Matrix for Appropriate Assessment Scale

	Lecturers here give the impression that they have nothing to learn from students	To do well in this course, all you need to have is good memory	Lecturers are interested in testing what you have memorized than what you have understood	Too many lecturers ask questions just about facts	Feed back about students is only provided in the form of marks and grades
Lecturers here give the impression that they have nothing to learn from students	1,000				
To do well in this course, all you need to have is good memory	,104	1,000			
Lecturers are interested in testing what you have memorized than what you have understood	,347	,184	1,000		
Too many lecturers ask questions just about facts	,061	,070	,170	1,000	
Feed back about students is only provided in the form of marks and grades	,175	,308	,326	,110	1,000

G: Inter-Item Correlation Matrix for Surface Learning Scale

	By working hard around examination period, it will be possible to get through this course	I easily find and stick to a quick way to accomplish a task required by my course	I memorize and reproduce perfectly what I'm taught	I learn to apply just the learned knowledge
By working hard around examination period, it will be possible to get through this course	1,000			
I easily find and stick to a quick way to accomplish a task required by my course	,178	1,000		
I memorize and reproduce perfectly what I'm taught	,233	,384	1,000	
I learn to apply just the learned knowledge	,215	,186	,184	1,000

H: Inter-Item Correlation Matrix for Deep Learning Scale

	I always like to obtain and accomplish the entire picture of a task required by my course	I'm interested in understanding, interpreting and relating what I'm taught	I learn to produce new insights about what I'm taught	I'm satisfied with my learning strategy
I always like to obtain and accomplish the entire picture of a task required by my course	1,000			
I'm interested in understanding, interpreting and relating what I'm taught	,197	1,000		
I learn to produce new insights about what I'm taught	,178	,442	1,000	
I'm satisfied with my learning strategy	,117	,198	,270	1,000

I: Inter-Item Correlation Matrix for Generic Skills Scale

	The course has helped me to develop my problem solving skills	The course has sharpened my analytical skills	The course has helped to develop my ability to work as a team member	I feel confident of solving unfamiliar problems because of this course	The course has improved my written and verbal communication skills	The course has helped me to develop the ability to plan my own work
The course has helped me to develop my problem solving skills	1,000					
The course has sharpened my analytical skills	,595	1,000				
The course has helped to develop my ability to work as a team member	,349	,371	1,000			
I feel confident of solving unfamiliar problems because of this course	,425	,405	,291	1,000		
The course has improved my written and verbal communication skills	,300	,422	,093	,400	1,000	
The course has helped me to develop the ability to plan my own work	,392	,545	,319	,462	,607	1,000

	Component									
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Item 5	,217	,180	,009	-,114	,085	,680	,030	-,023	-,099	-,056
Item 6	,247	,185	,071	-,105	,006	,648	,022	,100	,089	-,028
Item 7reveresed	,165	,118	,115	-,242	,064	,463	-,116	,021	,214	,153
Item 8	,177	,362	,111	-,083	,057	,535	,083	-,033	-,036	-,038
Item 9	,180	,195	,100	-,032	-,026	,509	-,003	,164	-,166	,086
Item 10	,132	,218	,026	-,010	,047	,475	-,109	,172	-,141	,060
Item 11	,037	,181	,642	-,116	,010	,137	,054	,000	,028	,155
Item 12	-,102	-,035	,304	,166	-,083	-,015	,628	-,036	,157	,082
Item 13	,018	,181	,682	-,071	,103	,124	,131	-,007	-,028	,024
Item 14	-,135	-,014	,256	,107	,039	-,067	,671	-,143	-,048	,022
Item 15reversed	,067	-,141	,018	,128	-,042	-,042	,366	-,250	,322	,393
Item 16	,078	,091	,762	,010	,078	-,020	,039	,079	,063	-,002
Item 17	,062	,127	,769	-,037	,106	,051	,032	,078	-,021	,054
Item 18	,101	,082	,733	-,009	,083	,049	-,046	,040	,018	-,093

	1	2	3	4	5	6	7	8	9	10
Item 19reversed	-,004	,260	,018	-,205	,118	,103	-,134	,042	,021	,645
Item 20	,152	,194	,545	-,020	,132	,007	-,057	-,130	-,196	-,071
Item 21	,284	,543	,139	-,063	,002	,252	-,055	,138	,077	-,082
Item 22	,172	,674	,139	-,054	,051	,231	-,005	,116	-,051	,084
Item 23	,159	,708	,137	-,133	,094	,149	,109	-,010	-,117	,135
Item 24	,145	,645	,141	-,121	,101	,154	,077	-,026	-,182	,118
Item 25	,165	,646	,187	-,036	,099	,153	-,031	,120	-,028	,022
Item 26	,242	,658	,181	-,083	,066	,171	-,013	,084	,030	-,021
Item 27reversed	,003	,303	,045	-,332	,156	,125	-,168	,088	,365	,294
Item 28	,439	,369	,203	-,069	-,113	,222	-,154	,045	,062	-,166
Item 29	,399	,413	,225	-,115	-,057	,234	-,099	,071	,057	-,133
Item 30	,221	,364	,325	-,164	,071	,134	,024	-,035	-,157	,002
Item 31reversed	-,286	-,161	-,033	,112	,004	-,116	,171	-,034	,488	,002
Item 32	,485	,284	,140	-,047	-,096	,116	-,110	,162	,121	-,205
Item 33	,107	,155	-,293	,212	-,174	,115	,477	,094	,215	-,337
Item 34	,032	,272	-,250	,159	-,119	,058	,615	,012	,097	-,255
Item 35	,130	,563	,129	-,171	,093	,125	,196	-,021	-,245	,047
Item 36 reversed	-,130	-,211	-,055	,069	,028	-,083	,150	-,093	,587	-,012
Item 37 reversed	-,011	,080	,146	-,130	,757	,092	-,068	,026	,063	-,028
Item 38 reversed	-,028	-,030	,214	-,172	,746	-,014	-,121	-,003	,019	-,006
Item 39	,054	,420	-,122	,079	-,226	-,039	,417	,000	,034	-,056

Item 40 reversed	,002	,122	,029	-,237	,746	,044	-,020	-,088	-,047	,077
Item 41 reversed	,046	,122	,087	-,222	,695	,037	,026	-,022	,019	,101
Item 42	-,125	-,338	-,066	,401	-,226	-,067	,013	,111	-,287	-,143
Item 43	,025	-,030	-,290	,499	-,305	,046	,041	,205	,163	-,116
Item 44	-,184	-,242	,032	,566	-,174	-,043	-,078	,073	-,190	-,074
Item 45	-,130	-,165	,045	,601	-,156	-,050	,117	,182	-,036	-,035
Item 46	,033	,018	,020	,144	-,144	,112	-,334	,492	-,151	-,051
Item 47	-,141	-,037	,000	,657	-,063	-,037	,103	-,044	-,123	,142
Item 48	,077	-,018	-,062	,661	-,155	-,141	,048	-,083	,192	-,085
Item 49	,086	-,029	-,067	,729	-,121	-,089	,110	-,085	,145	-,042
Item 50	,042	-,063	-,082	,703	-,077	-,090	,078	-,069	,105	-,054
Item 51	,407	,095	,015	-,010	-,026	,107	-,014	,580	-,028	,011
Item52	,397	,026	,035	-,014	-,044	,094	-,091	,643	,075	-,110
Item 53	,392	,110	,008	-,055	,014	,083	,019	,676	-,053	,075
Item 54	,386	,260	,057	-,034	,130	,045	,157	,371	-,194	,220
Item 55	,735	,170	,059	-,031	,054	,129	,053	,112	-,078	,050

Item 56	,781	,151	,069	-,019	,001	,154	-,002	,145	-,039	-,011
Item 57	,737	,180	,033	,004	,012	,153	-,042	,110	-,090	,089
Item 58	,748	,172	,042	-,039	,022	,204	-,012	,121	-,107	,033
Item 59	,765	,152	,092	-,014	,009	,150	-,028	,167	-,072	-,021

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 10 iterations.
Factor loadings ≥0.3 are shown on the table.

Appendix Table 1.3: Main Study Sample
Sub-scales Correlation Matrix:

		Intend ed_cur riculum	Clear _goal s	course _level_ resour ces	Curricu lum_in _action	Good_t eachin g	Inde pend ance	Approp riate_w orkload	Approp riate_a ssess ment	Learne d_curri culum	Surfac e_lear ning	Deep_l earnin g	Generi c_skills
Correl ation	Intended_curr iculum	1,000	,652	,884	,531	,622	,101	,318	-,299	,219	-,185	,252	,364
	Clear_goals	,652	1,000	,221	,531	,645	,114	,214	-,253	,331	-,265	,411	,518
	course_level_ resources	,884	,221	1,000	,356	,401	,060	,277	-,228	,077	-,074	,071	,149
	Curriculum_in _action	,531	,531	,356	1,000	,835	,480	,456	-,038	,399	-,086	,387	,487
	Good_teachin g	,622	,645	,401	,835	1,000	,172	,321	-,350	,345	-,290	,430	,552

	Independance	,101	,114	,060	,480	,172	1,000	-,038	,023	,205	,198	,059	,126
	Appropriate_workload	,318	,214	,277	,456	,321	-,038	1,000	-,465	-,107	-,350	,049	,103
	Appropriate_assessment	-,299	-,253	-,228	-,038	-,350	,023	-,465	1,000	,233	,516	,014	-,084
	Learned_curriculum	,219	,331	,077	,399	,345	,205	-,107	,233	1,000	,443	,733	,787
	Surface_learning	-,185	-,265	-,074	-,086	-,290	,198	-,350	,516	,443	1,000	-,077	-,103
	Deep_learning	,252	,411	,071	,387	,430	,059	,049	,014	,733	-,077	1,000	,621
	Generic_skills	,364	,518	,149	,487	,552	,126	,103	-,084	,787	-,103	,621	1,000
Sig. (1-tailed)	Intended_curriculum		,000	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000

Clear_goals	,000		,000	,000	,000	,000	,000	,000	,000	,000	,000	,000
course_level_resources	,000	,000		,000	,000	,002	,000	,000	,000	,000	,000	,000
Curriculum_in_action	,000	,000	,000		,000	,000	,000	,038	,000	,000	,000	,000
Good_teaching	,000	,000	,000	,000		,000	,000	,000	,000	,000	,000	,000
Independance	,000	,000	,002	,000	,000		,038	,139	,000	,000	,003	,000
Appropriate_workload	,000	,000	,000	,000	,000	,038		,000	,000	,000	,011	,000
Appropriate_assessment	,000	,000	,000	,038	,000	,139	,000		,000	,000	,249	,000
Learned_curriculum	,000	,000	,000	,000	,000	,000	,000	,000		,000	,000	,000

Surface_learn ing	,000	,000	,000	,000	,000	,000	,000	,000	,000		,000	,000
Deep_learnin g	,000	,000	,000	,000	,000	,003	,011	,249	,000	,000		,000
Generic_skills	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000	

Appendix Table 1.4 (a) Descriptive Statistics for all Scales Across University Type

		N	Mean	Std. Deviation
clear_goals	State university	116	22,1034	3,50001
	Federal university	190	21,0842	3,87957
	Total	306	21,4706	3,76709
course_level_resources	State university	116	30,5431	6,67948
	Federal university	190	26,0105	6,30276
	Total	306	27,7288	6,80368
good_teaching	State university	116	33,9224	6,74911
	Federal university	190	32,3316	6,69048
	Total	306	32,9346	6,74614
independance	State university	116	18,8362	3,80147
	Federal university	190	18,0579	3,53244
	Total	306	18,3529	3,65023
appropriate_workload	State university	116	13,1552	4,00783
	Federal university	189	13,7619	3,79970
	Total	305	13,5311	3,88484
appropriate_assessment	State university	116	16,9052	3,49404
	Federal university	190	17,4421	3,50726
	Total	306	17,2386	3,50624
surface_learning	State university	116	12,5948	3,28628
	Federal university	190	12,3579	3,33941
	Total	306	12,4477	3,31596
deep_learning	State university	116	16,1810	2,93583
	Federal university	190	15,6421	4,04319
	Total	306	15,8464	3,66721
generic_skills	State university	116	24,2845	3,95586
	Federal university	190	23,3053	4,01735
	Total	306	23,6765	4,01594

Appendix Table 1.4(b): ANOVA of all Scales Across University Type

		Sum of Squares	df	Mean Square	F	Sig.
clear_goals	Between Groups	74,824	1	74,824	5,348	,021
	Within Groups	4253,411	304	13,991		
	Total	4328,235	305			
course_level_resources	Between Groups	1479,723	1	1479,723	35,592	,000
	Within Groups	12638,763	304	41,575		
	Total	14118,487	305			
good_teaching	Between Groups	182,281	1	182,281	4,045	,045
	Within Groups	13698,412	304	45,061		
	Total	13880,693	305			
independance	Between Groups	43,631	1	43,631	3,299	,070
	Within Groups	4020,251	304	13,225		
	Total	4063,882	305			
appropriate_workload	Between Groups	26,461	1	26,461	1,758	,186
	Within Groups	4561,493	303	15,054		
	Total	4587,954	304			
appropriate_assessment	Between Groups	20,765	1	20,765	1,693	,194
	Within Groups	3728,820	304	12,266		
	Total	3749,585	305			
surface_learning	Between Groups	4,043	1	4,043	,367	,545
	Within Groups	3349,620	304	11,018		
	Total	3353,663	305			
deep_learning	Between Groups	20,920	1	20,920	1,558	,213
	Within Groups	4080,861	304	13,424		
	Total	4101,781	305			
generic_skills	Between Groups	69,064	1	69,064	4,329	,038
	Within Groups	4849,907	304	15,954		
	Total	4918,971	305			

Appendix Table 1.4(c): Multiple Comparisons of all Scales Across University Type

Dependent Variable	(I) Indicate type of university	(J) Indicate type of university	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Clear_goals	Private university	State university	,30285	,28181	,561	-,3874	,9931
		Federal university	3,80031 (*)	,26855	,000	3,1425	4,4581
	State university	Private university	-,30285	,28181	,561	-,9931	,3874
		Federal university	3,49746 (*)	,17915	,000	3,0586	3,9363
	Federal university	Private university	- 3,80031 (*)	,26855	,000	-4,4581	-3,1425
		State university	- 3,49746 (*)	,17915	,000	-3,9363	-3,0586
course_level_resources	Private university	State university	5,43821 (*)	,47909	,000	4,2647	6,6117
		Federal university	6,85031 (*)	,45655	,000	5,7320	7,9686
	State university	Private university	- 5,43821 (*)	,47909	,000	-6,6117	-4,2647
		Federal university	1,41210 (*)	,30457	,000	,6661	2,1581
	Federal university	Private university	- 6,85031 (*)	,45655	,000	-7,9686	-5,7320
		State university	- 1,41210 (*)	,30457	,000	-2,1581	-,6661
Good_teaching	Private university	State university	,97245	,47409	,122	-,1888	2,1337
		Federal university	8,83709 (*)	,45178	,000	7,7305	9,9437
	State university	Private university	-,97245	,47409	,122	-2,1337	,1888
		Federal university	7,86464 (*)	,30139	,000	7,1264	8,6029
	Federal university	Private university	- 8,83709 (*)	,45178	,000	-9,9437	-7,7305
		State university	- 7,86464 (*)	,30139	,000	-8,6029	-7,1264
Independance	Private university	State university	-,21322	,24703	,689	-,8183	,3918
		Federal university	-,28287	,23540	,486	-,8595	,2937
	State university	Private university	,21322	,24703	,689	-,3918	,8183
		Federal university	-,06965	,15704	,906	-,4543	,3150
	Federal university	Private university	,28287	,23540	,486	-,2937	,8595
		State university	,06965	,15704	,906	-,3150	,4543
Appropriate_workload	Private university	State university	2,04117 (*)	,27750	,000	1,3614	2,7209
		Federal university	3,66985 (*)	,26445	,000	3,0221	4,3176
	State university	Private university	- 2,04117 (*)	,27750	,000	-2,7209	-1,3614
		Federal university	1,62868 (*)	,17642	,000	1,1966	2,0608
	Federal university	Private university	- 3,66985 (*)	,26445	,000	-4,3176	-3,0221

Dependent Variable	(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
		State university	-1,62868(*)	,17642	,000	-2,0608	-1,1966
Appropriate_assessment	Private university	State university	-3,41968(*)	,27330	,000	-4,0891	-2,7503
		Federal university	-5,23869(*)	,26043	,000	-5,8766	-4,6008
	State university	Private university	3,41968(*)	,27330	,000	2,7503	4,0891
		Federal university	-1,81901(*)	,17374	,000	-2,2446	-1,3934
	Federal university	Private university	5,23869(*)	,26043	,000	4,6008	5,8766
		State university	1,81901(*)	,17374	,000	1,3934	2,2446
Surface_learning	Private university	State university	-,91057(*)	,26467	,003	-1,5588	-,2623
		Federal university	-3,11712(*)	,25221	,000	-3,7349	-2,4993
	State university	Private university	,91057(*)	,26467	,003	,2623	1,5588
		Federal university	-2,20655(*)	,16825	,000	-2,6187	-1,7944
	Federal university	Private university	3,11712(*)	,25221	,000	2,4993	3,7349
		State university	2,20655(*)	,16825	,000	1,7944	2,6187
Deep_learning	Private university	State university	-1,35998(*)	,20560	,000	-1,8636	-,8564
		Federal university	,38623	,19592	,144	-,0937	,8661
	State university	Private university	1,35998(*)	,20560	,000	,8564	1,8636
		Federal university	1,74621(*)	,13070	,000	1,4261	2,0664
	Federal university	Private university	-,38623	,19592	,144	-,8661	,0937
		State university	-1,74621(*)	,13070	,000	-2,0664	-1,4261
Generic_skills	Private university	State university	-,40309	,28360	,364	-1,0977	,2916
		Federal university	2,92728(*)	,27025	,000	2,2653	3,5892
	State university	Private university	,40309	,28360	,364	-,2916	1,0977
		Federal university	3,33037(*)	,18029	,000	2,8888	3,7720
	Federal university	Private university	-2,92728(*)	,27025	,000	-3,5892	-2,2653
		State university	-3,33037(*)	,18029	,000	-3,7720	-2,8888

* The mean difference is significant at the .05 level.

Appendix Table 1.5(a): Descriptive Statistics for all Scales Across Gender

		N	Mean	Std. Deviation
clear_goals	Male	222	21,3198	3,94091
	Female	84	21,8690	3,25162
	Total	306	21,4706	3,76709
course_level_resources	Male	222	27,4144	6,85198
	Female	84	28,5595	6,64296
	Total	306	27,7288	6,80368
good_teaching	Male	222	32,5045	7,08242
	Female	84	34,0714	5,64574
	Total	306	32,9346	6,74614
independance	Male	222	18,4009	3,67659
	Female	84	18,2262	3,59836
	Total	306	18,3529	3,65023
appropriate_workload	Male	221	13,4615	3,89459
	Female	84	13,7143	3,87631
	Total	305	13,5311	3,88484
appropriate_assessment	Male	222	17,4640	3,49351
	Female	84	16,6429	3,49058
	Total	306	17,2386	3,50624
surface_learning	Male	222	12,6126	3,23910
	Female	84	12,0119	3,49352
	Total	306	12,4477	3,31596
deep_learning	Male	222	15,9910	3,93153
	Female	84	15,4643	2,83883
	Total	306	15,8464	3,66721
generic_skills	Male	222	23,7162	4,11878
	Female	84	23,5714	3,75222
	Total	306	23,6765	4,01594

Appendix Table 1.5(b): ANOVA for all the Scales Across Gender

		Sum of Squares	df	Mean Square	F	Sig.
clear_ goals	Between Groups	18,383	1	18,383	1,297	,256
	Within Groups	4309,852	304	14,177		
	Total	4328,235	305			
course_level_resources	Between Groups	79,911	1	79,911	1,730	,189
	Within Groups	14038,576	304	46,180		
	Total	14118,487	305			
good_teaching	Between Groups	149,626	1	149,626	3,313	,070
	Within Groups	13731,067	304	45,168		
	Total	13880,693	305			
independance	Between Groups	1,860	1	1,860	,139	,709
	Within Groups	4062,022	304	13,362		
	Total	4063,882	305			
appropriate_workload	Between Groups	3,888	1	3,888	,257	,613
	Within Groups	4584,066	303	15,129		
	Total	4587,954	304			
appropriate_assessment	Between Groups	41,088	1	41,088	3,368	,067
	Within Groups	3708,497	304	12,199		
	Total	3749,585	305			
surface_learning	Between Groups	21,991	1	21,991	2,007	,158
	Within Groups	3331,673	304	10,959		
	Total	3353,663	305			
deep_learning	Between Groups	16,906	1	16,906	1,258	,263
	Within Groups	4084,875	304	13,437		
	Total	4101,781	305			
generic_skills	Between Groups	1,278	1	1,278	,079	,779
	Within Groups	4917,693	304	16,177		
	Total	4918,971	305			

Appendix Table 1.6 (a): Descriptive Statistics of all Scales Across Course of Study

		N	Mean	Std. Deviation
clear_goals	Chemical sciences	106	21,8679	3,66730
	Biological sciences	71	21,2817	3,92495
	Computer scienecs	65	21,3385	3,62404
	Mathematical sciences	64	21,1563	3,92476
	Total	306	21,4706	3,76709
course_level_resources	Chemical sciences	106	27,8491	6,41248
	Biological sciences	71	27,7042	6,06958
	Computer scienecs	65	27,8154	8,27627
	Mathematical sciences	64	27,4688	6,70458
	Total	306	27,7288	6,80368
good_teaching	Chemical sciences	106	33,1132	5,98462
	Biological sciences	71	33,9155	6,81122
	Computer scienecs	65	32,1692	6,93174
	Mathematical sciences	64	32,3281	7,62630
	Total	306	32,9346	6,74614
independance	Chemical sciences	106	17,8868	3,81306

	Biological sciences	71	18,5493	3,69087
	Computer scienecs	65	18,7692	3,55215
	Mathematical sciences	64	18,4844	3,42258
	Total	306	18,3529	3,65023
appropriate_workload	Chemical sciences	106	13,3679	3,84045
	Biological sciences	70	14,7286	4,13862
	Computer scienecs	65	12,7538	3,72085
	Mathematical sciences	64	13,2813	3,61860
	Total	305	13,5311	3,88484
appropriate_assessment	Chemical sciences	106	17,3585	3,57288
	Biological sciences	71	16,4085	3,89717
	Computer scienecs	65	17,4769	2,86197
	Mathematical sciences	64	17,7188	3,45708
	Total	306	17,2386	3,50624
surface_learning	Chemical sciences	106	12,3491	3,12606
	Biological sciences	71	11,5915	3,46236
	Computer scienecs	65	12,7846	3,40263
	Mathematical sciences	64	13,2188	3,20945
	Total	306	12,4477	3,31596
deep_learning	Chemical sciences	106	15,7830	2,61863

	Biological sciences	71	14,7324	3,42244
	Computer scienecs	65	16,1385	2,66855
	Mathematical sciences	64	16,8906	5,55240
	Total	306	15,8464	3,66721
generic_skills	Chemical sciences	106	23,1604	3,51632
	Biological sciences	71	23,4648	5,17088
	Computer scienecs	65	23,6923	3,87267
	Mathematical sciences	64	24,7500	3,29502
	Total	306	23,6765	4,01594

Appendix Table 1.6(b): ANOVA for all Scales Across Course of Study

		Sum of Squares	df	Mean Square	F	Sig.
clear_goals	Between Groups	26,727	3	8,909	,625	,599
	Within Groups	4301,508	302	14,243		
	Total	4328,235	305			
course_level_resources	Between Groups	6,391	3	2,130	,046	,987
	Within Groups	14112,096	302	46,729		
	Total	14118,487	305			
good_teaching	Between Groups	133,311	3	44,437	,976	,404
	Within Groups	13747,382	302	45,521		
	Total	13880,693	305			
independance	Between Groups	38,141	3	12,714	,954	,415
	Within Groups	4025,742	302	13,330		
	Total	4063,882	305			
appropriate_workload	Between Groups	146,461	3	48,820	3,309	,021
	Within Groups	4441,493	301	14,756		
	Total	4587,954	304			
appropriate_assessment	Between Groups	68,900	3	22,967	1,884	,132
	Within Groups	3680,685	302	12,188		
	Total	3749,585	305			
surface_learning	Between Groups	98,501	3	32,834	3,046	,029
	Within Groups	3255,162	302	10,779		
	Total	3353,663	305			
deep_learning	Between Groups	163,868	3	54,623	4,189	,006
	Within Groups	3937,913	302	13,039		
	Total	4101,781	305			
generic_skills	Between Groups	105,189	3	35,063	2,200	,088
	Within Groups	4813,782	302	15,940		
	Total	4918,971	305			

Appendix Table 1.6 (c): Multiple Comparisons of all Scales Across Course of Study

Dependent Variable	(I) Course_study	(J) Course_study	Mean Difference (I-J)	Std. Error	Sig.
clear_goals	Chemical sciences	Biological sciences	,58623	,57878	,795
		Computer scienecs	,52946	,59456	,851
		Mathematical sciences	,71167	,59743	,701
	Biological sciences	Chemical sciences	-,58623	,57878	,795
		Computer scienecs	-,05677	,64787	1,000
		Mathematical sciences	,12544	,65051	,998
	Computer scienecs	Chemical sciences	-,52946	,59456	,851
		Biological sciences	,05677	,64787	1,000
		Mathematical sciences	,18221	,66459	,995
	Mathematical sciences	Chemical sciences	-,71167	,59743	,701
		Biological sciences	-,12544	,65051	,998
		Computer scienecs	-,18221	,66459	,995
course_level_resources	Chemical sciences	Biological sciences	,14483	1,04833	,999
		Computer scienecs	,03367	1,07691	1,000
		Mathematical sciences	,38031	1,08212	,989
	Biological sciences	Chemical sciences	-,14483	1,04833	,999
		Computer scienecs	-,11116	1,17348	1,000
		Mathematical sciences	,23548	1,17826	,998
	Computer scienecs	Chemical sciences	-,03367	1,07691	1,000
		Biological sciences	,11116	1,17348	1,000
		Mathematical sciences	,34663	1,20376	,994
	Mathematical sciences	Chemical sciences	-,38031	1,08212	,989
		Biological sciences	-,23548	1,17826	,998
		Computer scienecs	-,34663	1,20376	,994
good_teaching	Chemical sciences	Biological sciences	-,80229	1,03469	,896
		Computer scienecs	,94398	1,06291	,852
		Mathematical sciences	,78508	1,06804	,910
	Biological sciences	Chemical sciences	,80229	1,03469	,896
		Computer scienecs	1,74626	1,15822	,519
		Mathematical sciences	1,58737	1,16293	,602
	Computer scienecs	Chemical sciences	-,94398	1,06291	,852
		Biological sciences	-1,74626	1,15822	,519
		Mathematical sciences	-,15889	1,18810	,999
	Mathematical sciences	Chemical sciences	-,78508	1,06804	,910
		Biological sciences	-1,58737	1,16293	,602
		Computer scienecs	,15889	1,18810	,999
independance	Chemical sciences	Biological sciences	-,66250	,55992	,706
		Computer scienecs	-,88244	,57519	,503
		Mathematical sciences	-,59758	,57796	,785
	Biological sciences	Chemical sciences	,66250	,55992	,706
		Computer scienecs	-,21993	,62676	,989
		Mathematical sciences	,06492	,62931	1,000
	Computer scienecs	Chemical sciences	,88244	,57519	,503
		Biological sciences	,21993	,62676	,989
		Mathematical sciences	,28486	,64294	,978
	Mathematical sciences	Chemical sciences	,59758	,57796	,785
		Biological sciences	-,06492	,62931	1,000
		Computer scienecs	-,28486	,64294	,978
appropriate_workload	Chemical sciences	Biological sciences	-1,36065	,59161	,154
		Computer scienecs	,61408	,60516	,794
		Mathematical sciences	,08667	,60808	,999
	Biological sciences	Chemical sciences	1,36065	,59161	,154

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Dependent Variable	(I)	(J)	Mean Difference	Std. Error	Sig.
		Computer scienecs	1,97473(*)	,66167	,032
	Computer scienecs	Mathematical sciences	1,44732	,66435	,194
		Chemical sciences	-,61408	,60516	,794
		Biological sciences	-1,97473(*)	,66167	,032
		Mathematical sciences	-,52740	,67644	,895
	Mathematical sciences	Chemical sciences	-,08667	,60808	,999
		Biological sciences	-1,44732	,66435	,194
		Computer scienecs	,52740	,67644	,895
appropriate_assessment	Chemical sciences	Biological sciences	,95004	,53538	,371
		Computer scienecs	-,11843	,54998	,997
		Mathematical sciences	-,36026	,55264	,935
	Biological sciences	Chemical sciences	-,95004	,53538	,371
		Computer scienecs	-1,06847	,59930	,367
		Mathematical sciences	-1,31030	,60174	,194
	Computer scienecs	Chemical sciences	,11843	,54998	,997
		Biological sciences	1,06847	,59930	,367
		Mathematical sciences	-,24183	,61476	,985
	Mathematical sciences	Chemical sciences	,36026	,55264	,935
		Biological sciences	1,31030	,60174	,194
		Computer scienecs	,24183	,61476	,985
surface_learning	Chemical sciences	Biological sciences	,75751	,50349	,520
		Computer scienecs	-,43556	,51722	,871
		Mathematical sciences	-,86969	,51971	,425
	Biological sciences	Chemical sciences	-,75751	,50349	,520
		Computer scienecs	-1,19307	,56359	,216
		Mathematical sciences	-1,62720(*)	,56589	,043
	Computer scienecs	Chemical sciences	,43556	,51722	,871
		Biological sciences	1,19307	,56359	,216
	Mathematical sciences	Mathematical sciences	-,43413	,57814	,905
		Chemical sciences	,86969	,51971	,425
		Biological sciences	1,62720(*)	,56589	,043
		Computer scienecs	,43413	,57814	,905
deep_learning	Chemical sciences	Biological sciences	1,05062	,55378	,310
		Computer scienecs	-,35544	,56888	,942
		Mathematical sciences	-1,10761	,57162	,291
	Biological sciences	Chemical sciences	-1,05062	,55378	,310
		Computer scienecs	-1,40607	,61989	,164
		Mathematical sciences	-2,15823(*)	,62241	,008
	Computer scienecs	Chemical sciences	,35544	,56888	,942
		Biological sciences	1,40607	,61989	,164
		Mathematical sciences	-,75216	,63588	,706
	Mathematical sciences	Chemical sciences	1,10761	,57162	,291
		Biological sciences	2,15823(*)	,62241	,008
		Computer scienecs	,75216	,63588	,706
generic_skills	Chemical sciences	Biological sciences	-,30441	,61227	,970
		Computer scienecs	-,53193	,62897	,870
		Mathematical sciences	-1,58962	,63201	,099
	Biological sciences	Chemical sciences	,30441	,61227	,970
		Computer scienecs	-,22752	,68537	,991
		Mathematical sciences	-1,28521	,68816	,324
	Computer scienecs	Chemical sciences	,53193	,62897	,870
		Biological sciences	,22752	,68537	,991
		Mathematical sciences	-1,05769	,70305	,521
	Mathematical sciences	Chemical sciences	1,58962	,63201	,099
		Biological sciences	1,28521	,68816	,324
		Computer scienecs	1,05769	,70305	,521

Questionnaire

A Questionnaire Designed for the Quality Evaluation of Teaching and Learning in Nigerian Higher Institutions (Case Study of Some Universities)

Section A: Personal Information

This section is created to gather personal information about the respondents, please underline the appropriate category that describes you and in the space provided in (4) below, kindly write down your main course of study in the school or (faculty)of sciences.

(i) Indicate your type of university {private, state or federal university}
(ii) Indicate your gender {male; female}
(iii) Indicate your level of study { first, second, third or final year level}
(iv) Indicate your main course of study --
(v) Indicate the generation of your university (1st, 2nd, 3rd, 4th, and 5th, generation)

Scoring Items.

Items are being scored on a scale of 1 to 5; where 1 means "completely disagree", 2 means " disagree", 3 means "neither agree nor disagree" 4 means "agree" and 5 means "completely agree". In the boxes provided against each question, fill in with the number that best describes your perception about each of the questions being asked. The items with asterisk are negatively worded to understand areas of weaknesses; so they are scored in a reverse order.

Section B: Intended Curriculum

Sub-section (Clear Goals)

5. It is always easy here to know the standard of work expected of a student. [ ]

6. One usually has a clear idea of where he is going and what's expected of him. [ ]
7. The aims and objectives of my course are Not made very clear [ ] **
8. The lecturers here make what they expect from students clear right from the start of the course [ ]
9. Course out line are given and they reflect new trends in scientific knowledge [ ]
10. Course outline allows for cross fertilization of knowledge across other discipline. [ ]

Sub-section (Course level resource materials and facilities)

11. Classrooms and lectures theatre from where I take my course are conducive for   teaching and learning [ ]
12. The laboratories have enough facilities for the course [ ]
13. Our laboratories attendants and technicians are extremely good in helping students in the laboratories [ ]
14. The number of computers available is adequate for the course [ ]
15. The access to computers is not easy [ ] **
16. Library is conducive for reading learning and research [ ]
17. Textbooks and materials in the library are suitable for my course [ ]
18. Textbooks and materials in the library are easy to understand [ ]
19. Books and materials in the library are outdated for my course [ ] **
20. Library has internet facilities for easy retrieval of information [   ]

Section C: Curriculum in Action

Sub-section: (Good teaching)

21. Lecturers in this course motivate students to do their best in studying [ ]
22. Lecturers put a lot of time in to commenting on student's work [ ]

23. Lecturers make a real effort to understand difficulties students may be having with their studies [ ]
24. Lecturers here normally give report (feed back) on how you are going [ ]
25. Our lecturers are extremely good at explaining things to us [ ]
26. Lecturers here work hard to make the lectures of this course interesting [ ]
27. Lecturers here show no real interest in what students have to say [ ] **
28. This course really tries to get the best out of all its students [ ]
29. Lecturers have a good practical knowledge of this course [ ]
30. Lecturer student ratio is appropriate for the course (1:45) [ ]

Sub-section: (Emphasis on independence)

31. There are few opportunities to choose the particular areas you want to study [ ] **
32. The course has encouraged me to develop my own academic interest as far as possible [ ]
33. Students have a great deal of choice over how they are going to learn in this course [ ]
34. Students here are given a lot of choice in the work they have to do [ ]
35. We often discuss with our lecturers how we are going to learn in this course [ ]
36. There is very little choice in the way you are assessed in this course [ ] **

Sub-section: (Appropriate work load)

37. The work load in this course is too heavy [ ] **
38. It seems to me that the syllabus tries to cover too many topics [ ] **
39. We are generally given enough time to understand what we have to learn [ ]
40. There is a lot of pressure on you as a student in this course [ ] **
41. The volume of work to be done in this course can not be all thoroughly comprehended [ ] **

Sub-section: (Appropriate assessment)

42. Lecturers here frequently give the impression they have nothing to learn from students [ ]**
43. To do well in this course, all you really need is good memory [ ] **

44. Lecturers seem more interested in testing what you have memorized than what you have understood [   ] **
45. Too many lecturers ask us questions just about facts [   ] **
46. Feed back about student's work is usually provided only in the form of marks and grades [   ] **
47. It will be possible to get through this course just by working hard around examination period [   ] **

Section D: Learned Curriculum

Sub-section: (Surface Learning Strategy)

48. I easily find and stick to a quick way just to accomplish a task required by my course [   ] **
49. I Memorize and reproduce perfectly what I'm taught. [   ] **
50. I learn to apply just the learned knowledge [   ] **

Sub section: (Deep Learning Strategy)

51. I always like to obtain the entire picture of a task required by my course and accomplish it [   ]
52. I'm interested in understanding, interpreting and relating what I'm taught [   ]
53. I learn to produce new insights about what I'm taught [   ]
54. I'm satisfied with my learning strategy [   ]

Sub-section: (Generic skills)

55. The course has helped me to develop my problem solving skills [   ]
56. The course has sharpened my analytical skills [   ]
57. The course has helped to develop my ability to work as a team member [   ]
58. As a result of doing this course, I feel confident about solving unfamiliar problems [   ]
59. The course has helped me develop the ability to plan my own work [   ]
60. Overall, I'm satisfied with the quality of my course [   ]

** means items are reversed.