

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Overtime, education has remained the major driver of national growth and development. Sequel to this, it is generally undergoing significant changes globally in an attempt to make it more robust and better poised for its primary role. Undoubtedly, it remains an acknowledged tool for the realization of social, political, cultural and economic aspirations in a country. It is a formidable bedrock of all human sectors; hence, it is generally belief that the quality of education the citizens receive significantly determine the extent of progress such a nation can attain (Okorochoa, 2004). Stressing the importance and significance of education in an economy Odiba (2004), summarised education as that tool that misfortune cannot befall, that no extent of crime can remove, and that cannot be enslaved or alienated.

Education plays a pivotal role in the supply of manpower to the various sectors of every economy. In this role, national borderlines are becoming thinner and less apparent as the export of human resources mostly from Africa becomes the order of the day through a porous perspective of ‘brain drain’. However, things no longer remain the same as the reputation of the global educational system continues to dwindle. Even though enormous importance has been placed on the development of the educational sector in most countries of the world, the developed and developing inclusive, many countries, particularly the developing ones are still finding their educational sector in a shabby state and even a near-collapse situation (Al-Damen, 2017).

Globalization, which refers to the institutionalization of global benchmarks for performance, has increased the level of competition not just in admission sourcing but also in job seeking. By this, the traditional protection offered by border demarcation no longer exists

as a kind of international labour market has emerged to fill the available job positions around the world. It is equally on record that other forces such as increase in the number of student's enrolment, increasing competition between higher education institutions, more expectations from parents and employers of labour made it important that all hands must be on deck in the struggle towards ensuring quality in the Nigerian educational sector.

Over the years, the university education of Nigeria was highly revered both within and even outside the shores of the country Okorocha (2004). Nigerian graduates were overly sought out as their performances on the job over shadows that of their contemporaries from other nations. Consequently, the ivory towers were seen as the beacon through which sustainable national development can be achieved both effectively and efficiently. While recounting the old glories of Nigerian graduates, Okorocha further submitted that the quality of teaching in the pre-tertiary schools were in line with international best practices and it has facilitated admission for the teeming Nigerians opportune to further their studies abroad in prestigious higher institutions both in the united Kingdom and in the States.

Contrary to this over blown expectation, the tale surrounding the Nigerian university system in the recent decades has fault its essence and image and this has greatly watered down its reputation among the comity of nations.

Nigerian graduates are now been trailed by perpetual underperformance in their jobs as the earlier confidence reposed in them has significantly waned (Nkang, 2013) and this has led to the massive hunt for foreign experts who are now preferred to the ill-equipped graduates of the Nigerian tertiary institutions. This is evident mostly in the industrial sector mostly populated by multinational corporations. In defence of the sporadic change in the preference of employees, Shell for instance emphasized on the huge expenses required to re-train Nigerian graduates abroad before they can be fit for job placement in strategic positions. In backing up this claim by Shell, Odugbemi (2013) buttressed that the company is accustomed

to sending Nigerian-trained employees for a one-year technical knowledge training prior to their consideration for placement. This he further submitted, remains the case for only Nigerian-trained graduates unlike their counterparts from abroad that are placed for job duties immediately they are being employed.

One of the factors that could be attributed to the fall in educational quality is the establishment of some state universities, which are largely due to political reasons and the success or otherwise depends on the visions and aspirations of the State Chief Executive Officer. Another factor can be attributed to the establishment of many private universities, which in most cases are either owned or managed by an individual, group of people or an organisation, profit maximisation seems to be their watch word, hence, quality to them is secondary. Corroborating the above assertion, Olaniyan (2001) as adapted by Ajadi (2010) explains that universities established, managed and funded by private entrepreneurs complemented both the federal and the state universities but with intention to recover cost in short time and make profit.

Although, it has been argued that the above-mentioned has notably promoted the continuous fall in the quality of education in Nigeria, the most notable and most logical factor remains the performance of academic staff of these universities (Yann, 2003). A better performance of academic staff, both in regards to their teaching and research quality, as well as their contributions to community development is expected to enhance the quality of university graduates and consequently, the growth and development of the country. However, a fall in performance of academic staff may result to more-than-proportional fall in the quality of university graduates, which is expected to have a multiplier effect on the extent of national development.

Several factors have been suggested to pose serious challenges in the way of improving the performance of academic staff in Nigeria. It has been observed that lecturers in

many Nigerian universities are not satisfied with the university atmosphere in relation to the available facilities for research, community service and teaching in addition to the total emoluments accrue to them in form of basic monthly salaries (Nkang, 2013). The level of basic infrastructural facilities needed for improved teaching and research performance have been reported to be in an unwelcoming state, upon which many of university lecturers have attributed a large share of the blame to causing the downward trend in their performance, both in terms of teaching and research.

The monthly salary has also been criticised by the lecturers as not much of an incentive for them to put extra effort in ensuring quality teaching and research output (Odugbemi, 2013). Above all, being an academic staff in the university depicts some level of enjoying job security to many people as opposed to an avenue of contributing to national development through transferring quality education to the coming generation (Nkang, 2013).

These factors, most especially, the fall in academic staff performance have not only influenced education quality among universities in Nigeria, but have multiplier effect on the economy as parents of wards that schooled in foreign countries have to eject an enormous amount to cover the cost. Odugbemi (2013) states that, Nigeria losses a colossal sum of ₦30 billion annually to rising demand of foreign education since qualitative education in Nigeria can no longer be guaranteed.

It is equally on records that universities are grossly underfunded and consequent to that, many universities are found to be engaging in so many unwholesome practices just to measure up to expectations. Okebukola (2011) concluded that underfunding of education does not only terminate at infrastructural deficiencies but also has forced many universities to engage in so many unwholesome income- generating activities at the expense of research. The issue of underfunding has led to serious deterioration in infrastructures as seen in many

universities where a reasonable percentage of their infrastructures are either obsolete or dilapidated. Sharing the same view, Umoh, (2002) identified funding as a cardinal setback to the performance of academic staff in Nigerian universities and this to him, remains the major harbinger of other related challenges that has continued to curtail and prevent the attainment of quality in the Nigerian university education.

In line with the funding challenge, academic staff of Nigerian universities finds it difficult to attend international conferences due to lack of sponsorship. Buttressing this position, Yann (2003) opined that the interaction and collaboration that is supposed to be between the Nigerian universities and its counterparts world over has been severed in view of the ever widening gaps that has characterized their engagements. The activities of staff unions coupled with volatile students' unionism and secret cults have equally gone a long way in affecting the quality of university graduates. Equally undermining quality in university education is that the curriculum being used in some universities are not practically biased to favour entrepreneurship development, which has greatly contributed to Universities producing graduates that are not employable.

In view of the prominent role that quality tertiary education plays in the development of a nation, it has thus become desirable for concerted academic effort in this area. It is obvious that for universities to continuously perform effectively and efficiently its statutory role of producing the needed workforce that will be characterized with commitment, professionalism and sound moral standard, it must be made efficient. Through this category of human capital, a nation has the hope of attaining development that will be sustainable.

These challenges curtailing the aspired increase in the performance of academic staff in Nigerian universities therefore, need to be eradicated in order for the improvement in the quality of university graduates and better economic development. Concern for improvement in the performance of academic staff to guarantee better university outcomes in Nigerian

universities is most desirable for some obvious reasons. This include the fact that university education is the major source of realising national growth and development but couple with the fact that there is a growing importance of trans-border education made possible and unavoidable by globalization.

Total Quality Management (TQM) has emerged as one of the trending philosophies on quality and management concepts in the recent times. It is a philosophy that is rooted in a combination of management tools and innovative efforts that can upgrade the level of performance of an organisation. According to Witcher (1990) in Murad and Rajesh (2010), the philosophy is characterized with three-dimensional terms, which are; Total, Quality and Management. As for what they represents, Total deals with the scope of individuals involved along the chains of suppliers and customers. Quality covers the precise specification in terms of inherent attributes looked up to in a product or service, while Management represents the dedication and commitment of the high level executive members of the organisation.

TQM is a well-established concept in business and industry, but recently, it is gaining acceptability of introduction, experimentation and implementation in the higher education institutions such as Oregon State University (1990); Wolverhampton University, U.K. (1993); Aston University, U.K. (1995); University of Central Queensland, Australia (1995); and Otago Polytechnic, New Zealand (1995) (Harris, 2012). In view of the above therefore, TQM is seen as the concerted effort directed at sustaining continuous improvement in the utility enjoyed by the consumers. This is however made possible by the organizational employees. The emphasis on totality means it is inclusive of all employees and is aimed at ensuring that all challenges that may impede quality performance of the product is taken care of while maintaining the satisfaction of the of the consumers.

In view of the fact that Nigerian government is making an attempt to enhance the educational sector with a view to boosting the performance of academic staff and consequently, improve the quality of university outputs, adoption of TQM practices may serve as an important tool to achieve this goal. TQM practices is believed to help enhance the development of strategies that would help in monitoring, measuring and managing academic staff performance for better improvement in order for the production of knowledge-based citizens ready to meet the global challenges. Therefore, this research work is designed to examine the impact of Total Quality Management on academic staff performance in selected Nigerian Universities.

1.2 Statement of the Problem

University education in Nigeria is fast losing both its domestic and global acceptability due to the continuous decline in the quality of graduates being produced in recent years. The country suffers serious reputational and image challenges arising from the fact that our universities are accused of producing half-baked, unfit and unqualified graduates who add little or no value to the productive activities of employers, graduates who are often unemployable are equally in most cases not fitting into the demands for job-creators rather than job-seekers that will combat unemployment and overwhelming labour market situations in the country and the world at large. This reality can be attributed to the declining performance of academic staff in Nigerian universities.

This is obvious from the decline in interest of many academic staff to genuinely impact relevant knowledge to students and conduct quality research for meaningful societal development in the short and long term. The loss of interest in doing their primary objectives of being university lecturers has consequently led to continuous fall in academic staff performance and further negatively impacted national development (Ajayi, 2004).

The situation can be well related to the failure of the educational system in adequately managing the contribution of academic staff to teaching, research and community development. Several challenges are in the way to improving the performance of academic staff, which are related to inappropriate management of working environment, measuring, monitoring and commensurately rewarding the activities of academic staff (Akhuemonkhan, Raim & Dada, 2014). For instance, the unconducive academic environment, coupled with the inadequate teaching and research facilities have been one of the major challenges facing academic staff in a bid to step up their teaching and research ability.

Issues related to incommensurate reward for academic staff has been widely talked about as a factor that immensely contribute adversely to the interest of academic staff in Nigerian universities to give their best and has consequently affected their performance (Adetunji, 2017). Insufficient funding for academic staff to participate in relevant training programmes and domestic and international conferences, which are expected to keep them up to date in their respective field has also form an hindrance to improvement in the performance of academic staff in Nigerian universities (Adeolu, 2011).

The quality practices of any organization manifests in the ability of its products or services to meet the criterion of expectations of its end users. Ultimately, an organization or an institution is best represented by the attestable level of satisfaction its end products offers those who make use of them with or without efforts made by the producers to tell or persuade the buyers to the contrary. Also, there is no gainsaying the fact that quality service delivery is a matter of what practical measures are instituted by the managers of any undertaking to build a quality culture. It is therefore essential to underscore the extent to which universities in Nigeria go to inculcate a quality orientation in their activities and programmes.

Many empirical studies tend to give credence or support widespread anecdotal claims that systemic decline exist in the performance of academic staff in Nigerian universities, which has consequently affected the quality of graduates. In effect, theorists agree with practitioners and end users of the products of our universities that there are serious quality problems inherent in the university systems which manifest in emergent gaps associated with our university graduates.

It is infallible logic that the products of any system cannot be better than the inherent quality control measures that are instituted at the various stages in the processes that are laid out for production. This simply means that the poor performance of academic staff may simply be reflections of the existence of lack of sound quality management practices in the system.

The extent to which the performance of academic staff of Nigerian Universities is related to application of TQM by the Universities has not been systematically proofed. It is essential proving beyond doubts that the observable declining performance of academic staff, which has been reflected in the standard of University graduates in Nigeria is as a result of the inadequacies or otherwise of the wrong application of total quality management in our Universities. While the practices of TQM is common in other sectors such as banking, insurance, manufacturing, healthcare, food and beverages, it is still not well an accepted notion that TQM could be adopted and put to good use in order to reposition our educational system.

Whilst a number of research works on impact of TQM in manufacturing sector have been carried out in mainly the developed countries of the world, though some elements of TQM studies have been done in the health (Adeoti, 2007), food and beverages (Fakokunde,

2010), and banking (Adeoti, 2003) sectors of Nigeria, but not knowing much about its impact in the university system leaves much to be learned.

In addition, discrepancies on the unifications of TQM practices and indices among authors called for harmonisation in various field of endeavours. Past researches such as Osayawe et al, (2005); Sadikoglu, et al, (2014); Ernest et al, (2015); Oluwaseyi, (2016); and Barbara et al., (2017) were of the opinion that the TQM metrics in manufacturing related industries is different from TQM indices in service related sectors (Adeolu, (2011), Adetunji, (2015); Aduke, (2015); Gandhi, (2015); Faizan Ali et al. (2016); and Adetunji et al. (2017)). These called for unifications of TQM practices variables in products and services organisations.

1.3 Research Questions

In view of the foregoing, the following research questions are raised as guide in the conduct of the study.

- i. What is the effect of student focus on academic staff productivity in North-Central, Nigerian Universities?
- ii. What is the relationship between continuous improvement and quality of teaching of academic staff in North- Central, Nigerian Universities?
- iii. How has team work affected research output of academic staff in North-Central, Nigerian Universities?
- iv. What is the impact of leadership commitment on community services of academic staff in North- Central, Nigerian Universities?
- v. To what extent do innovative practices affect academic staff efficiency in North- Central, Nigerian Universities?

1.4 Research Objectives

The study examined the impact of TQM practices on academic staff performance in selected Universities in North-central, Nigeria. Specific objectives of the study are to:

- i. examine the effect of student focus on academic staff productivity in North-Central, Nigerian Universities;
- ii. determine the relationship between continuous improvement and quality of teaching of academic staff in North- Central, Nigerian Universities;
- iii. examine the impact of team work on academic staff research output in North-Central, Nigerian Universities;
- iv. evaluate the impact of leadership commitment on community services of academic staff in North- Central, Nigerian Universities; and
- v. assess the impact of innovative practices on academic staff efficiency in North -Central Nigerian, Universities.

1.5 Research Hypotheses

To guide the conduct of the study, the following hypotheses were formulated

Ho₁: student focus does not have significant impact on academic staff productivity in North- Central, Nigerian Universities.

Ho₂: there is no significant relationship between continuous improvement and quality of teaching of academic staff in North- Central, Nigerian Universities.

Ho₃: team work does not have significant impact on academic staff research output in North- Central, Nigerian Universities.

Ho₄: there is no significant impact of leadership commitment on community services of academic staff in North- Central, Nigerian Universities.

Ho₅: innovative practices have no significant impact on academic staff efficiency in North- Central, Nigerian Universities.

1.6 Significance of the study

Since education is basically the bedrock of national development; and the primary endeavour of humanity, in other words, the processes by which mankind access and acquire effective skills and knowledge, it is extremely important therefore, that the need for sound, healthy and qualitative University education can certainly never be over emphasized.

The decline in the performance of academic staff in Nigerian Universities in terms of teaching, research and community services for societal development, which has contributed to the fall in educational standard and quality of graduates, has principally led to this research in contributing to knowledge in respect of how the best can be gotten from academic staff, most especially, in Nigerian Universities. The prevalence of poor-performing academic staff does not only result in the production of poor quality graduates, but also results to having dire consequences on the economy in the areas of the supply of quality labour required for the socio-economic activities that can facilitate national development and consequently pose a great danger for Nigerian graduates seeking for admission for further studies abroad.

The study therefore, will acquaint University management on how to use basic quality tools to manage and improve processes so as to improve the performance of

academic staff and in turn, enhance the quality of University education. Furthermore, the research work will assist University management greatly to maintain their competitiveness, eliminate inefficiencies in the organisation, help to focus on customer needs, achieve high performance in all areas and satisfy the needs of all stakeholders.

Another area that the study will be of innumerable useful to Universities is that it will shape the strategies of University management in focusing more on process instead of output in their attempt to satisfy various stakeholders including but not limited to the parents, community, students and the various competent labour seeking platforms in general.

It is equally anticipated that the findings of the study will assists in addressing some identified critical challenges affecting quality education in Nigerian Universities such as Universities management not strictly adhering to NUC students/lecturers ratios, developing curriculum that will be entrepreneurial focused, issue of University lecturers' consistent strike.

The findings of the study will not only serve as a veritable tool for academics and researchers, but also to all stakeholders in the educational sector on how academic staff performance can be improved to achieve better quality of graduates.

To the Government, it's expected that the findings will assist the policy makers in policy formulation most especially as regards recruitment and funding policies of Universities. That will equally assists in reducing the unending strikes peculiar to the Academic Staff Union of Universities (ASUU).

1.7 Scope of the study

The study examined the impact of TQM on the performance of academic staff in selected Universities in North-central, Nigeria. Therefore, the study is centred on ten (10) public and private Universities in North-central geo-political zone of Nigeria. These ten (10) Universities are made up of seven (7) public Universities and three (3) private Universities. The public Universities include: University of Ilorin, Ilorin; Federal University, Lokoja; University of Jos, Jos; Federal University, Lafia; Federal University of Technology, Minna; University of Agriculture, Makurdi; University of Abuja; Kwara State University, Malete; Kogi State University, Anyigba, Nassarawa State University, Keffi and Benue State University, Markurdi. The private Universities include: Al-Hikmah University, Ilorin; Landmark University, Omu-Aran; and Nile University, Abuja.

The selection of these universities was based on quota, proximity and most accessible, as most of these Universities are located in the state capitals and major urban centres. This was done to ease the personal appearance of the researcher in most of these Universities and help increase the rate of response and return rate of the research instrument.

CHAPTER TWO

LITERATURE REVIEW

2.1 Preamble

This chapter provides a brief conceptual clarification of performance measures for academic staff, as well as quality management covering areas such as meaning and dimension of quality, the origin of TQM, basic principles underlying TQM, TQM experts, quality assurance, quality cost and TQM conceptual models. Also, the issue of theoretical and empirical reviews are discussed.

The central theme of the review was to examine the impact of TQM on the performance of academic staff in selected Universities in North-central, Nigeria taking a cue from similar programmes in other developed and developing countries such as U.S.A., U.K., South Africa, India etc. (Quinn, Lemay, Larsen & Johnson, 2009).

2.2 Conceptual Clarifications

The conceptual clarification presented in this study which starts with the concept of quality is also presented with a link to quality management. The concept of performance, its evolution and performance in the academic context are equally discussed.

2.2.1 Concept of Quality

As a concept that has been in existence for many decades, quality has attracted varied definition from social scientists overtime. For instance in the late nineteenth century, it is ascribed to the routine inspection of products conducted to make sure that the agreed production standard is adhered to by the production industries. However, as organizations came to recognize the impact of quality, the concept became widened from the initial technical and inspection focus to organization-wide focus.

Quality has to do with the level of utility expected by the consumer from products and services. In the words of Smith (2000), there now emerged the new thinking of quality denoted by the “big Q” from the old thinking denoted by the “little q”. According to him, the old thinking was narrow-minded focused only on products control and led by inspectors and experts alone. The new thinking however is strategic and for everyone in the organization, which is all about improvement. Quality in education has to do with the creation of an enabling atmosphere where collaboration among the relevant stakeholders (government, community and parents) is fostered in a bid to facilitate the attainment of the required educational competencies adequate for the present and future need of the nation (Arcaro, 2005).

Fuzi (2011) observed that different definitions of quality led to confusion in the field of quality. Powel (1995) in a similar vein opined that the attribution of the term ‘quality’ to education is ambiguously notorious as varied stakeholders attribute different meaning to it. Nevertheless, one of the ingredients required to compete is the attainment of the best standard often referred to as ‘quality’ both at home and at the international market (Harvey, 1995).

Shiba, Graham and Walden (1993) defined quality as a concept that must conform to the following parameters:

- i. Fitness to standard i.e. conformance to the specification
- ii. Fitness to use i.e. conformance to the expected use

- iii. Fitness to cost i.e. conformance to the expected use and the expected price.
- iv. Fitness to latent requirements i.e. conformance to unexpected needs.

Crosby (1979) while contributing to the definition of the term simply presents quality as adherence to acceptable standard, while Deming (1986) one of the earliest apostles of quality related it to the extent to which conformity in standard, predictability and dependability is jointly achieved at the minimum cost that is affordable to the average consumer and Juran (1989) captured it as fitness for use of purpose.

Still on what quality connotes, Anil Kumar, Poornima, Abraham and Jayashree (2006) viewed quality from a broader perspective to include all features of a product which satisfy customer needs. To them, before any product can be adjudged to be qualitative, it must possess the following attributes: reliability, durability, suitability and above all customer satisfaction.

Even though, the word quality can be concluded to have no single universal definition but one common ground in all the various definitions is that the end user interest is of paramount importance, hence it is highly imperative that customer satisfaction must stand out as one of the primary objectives of any organisations.

2.2.1.1 Quality Dimensions in the University Education

Quality as observed from the perspective of Arora (2010) is an integral part of human activity, which is a sustained and continuous positive progress in the capacity of a service or product. Quality dimensions in education can be classified into:

- i. Fitness of purpose: this requires that the reason for demanding the service or product in the first place be adequately fulfilled. As regards educational sector therefore, the mandate remains the turning out of seasoned capable hands to foster development not just in the country concerned but also all over the world. More or less, it encompasses the realization of the vision and mission of the institutions.

- ii. Value of money: basically, in every investment there must be return and services rendered must at least equate the financial value expended by the service or product consumer. When translated to the operation of higher educational institutions in Nigeria therefore, the periodic sought of accountability depicts the process of ensuring that government investment in the schools reflects on the services delivered to the student in terms of teaching, contribution to national development through research and community service. Other stakeholders in the education sector such as parents, students and the school community also require equivalent value for financial resources committed in the sector.
- iii. Transformation: this is the process of enhancing or empowering students to acquire new skill or knowledge.
- iv. Excellence; as an embodiment of education itself, school experience is highly cherished and thus, enormous finance is committed to ensuring that conducive learning environment is created for the students and staff alike.

While presenting a six-criterion framework for understanding quality dimensions, Owlia & Aspinwall (1996) indicated the following for adoption in the university system:

Table 2.1 Quality Dimensions in Higher Education

Dimensions	Features
Tangible	Adequate facilities Unfettered access Conducive and charming learning atmosphere Supporting Hygiene facilities like (accommodation, extra-curricular enhancing facilities etc.)
Competency	Adequate and seasoned Academic staff Adequate technical knowhow with supporting qualifications Effective communication skill in addition to possessing prerequisite experiences
Attitudinal prowess	Adequate attention to the needs of the students

	Capability to render assistance when required Readiness to provide support services Emotional commitment to the aspirations of the students
Curriculum	Adequacy of course content with job performance after school Espirit de corp and effective Communication skills Engaged scholarship among diverse fields Adequate technical skills
Knowledge Transfer	Presentation efficiency Organized and conciseness Consistency and objectivity of test tools Effective Feedback mechanism
Consistency and Reliability	Truthfulness Rewarding originality Effective conflict management skills

Source: Sudha, T. (2013)

2.2.2Defining TQM

TQM like any other social science concepts has been subjected to definitional dilemma in view of the perspective diversity that has characterized the style of social science commentators. For instance, Boaden (1997) opined that an attempt at defining TQM is similar to targeting a moving object.

However, a common thread in the definitions of TQM revolves around the fact that it is a set of laid down strategies that moderate a management approach to running an organisation. Through it, the realization of the pre-set objectives are facilitated. Fuzi (2011) is of the view that most of the definitions can be classified as follows:

- i. The matching of the specified criteria upheld as standard gauge that a product or service is expected to meet.
- ii. This focuses on the capacity of the product or service to match consumer expectation in terms of utility.

To properly establish the above, Ross (1995) for instance examine TQM from a philosophical perspective of the management for a sustained improvement in the performance of a product or service to meet and even surpass the expectations of the consumers. This he insisted can be made possible by the employees that must have displayed a high level of innovation, commitment, team work in a deliberate move to beat competitors.

Similarly, Dale, Wu, Zain, Williams & Vander (2001) define TQM as an encompassing concept housing every ideas relating to product and service quality. Oakland (1993) on the other hand examined TQM from the competition perspective when he described it as the deliberate attempt to surpass colleagues in the same business through product uniqueness achievable through product design, flexibility and cost. In line with this perspective, though in a broader way, Shiba *et al.*, (1993) sees the concept as emerging system of remaining relevant in the ever-dynamic market environment.

Still on what TQM connotes, Dahlggaard, Kristensen & Kanji (1994), described quality as a corporate strategy aimed at achieving an increased satisfaction of the consumers through product differentiation made possible by the employees in the organisation. Johnson (2013) advanced a quantitative approach to the definition of TQM when he related it to the concerted effort engineered into a product or service with the intention of addressing the aspiration of the consumers through the commitment of the organizational employees. In a broader sense, Weihrich, Cannice and Koontz, (2008) view TQM as a long-term commitment to the sustained upgrade of customers' utility in a product or service made possible by the employees. To Shiba *et al.*, (1993), Dean and Bowen (1994), Vuppalapati, Ahire & Gupta (1995) and Robins & Coulter (2009), TQM can be defined as a philosophy of management directed at improving the satisfaction derivable from a product or service in line with the expectation of the consumers.

Steingrad & Fitzgibbons(1993) while subscribing to the notion that TQM is a concise set of activities and process used to reduce production hitches noted that the essence of the concepts is to ensure that effectiveness and efficiency both in the production and use of the product or service is achieved. Juran (1989), one of the earliest apostle of TQM related the concept in a simple way as “fitness for use” or purpose. To him, quality can best be defined from customer’s perspective. He equally highlighted quality planning, improvement and control as the idea behind the concept of Quality trilogy.

In a slightly different perspective, Crosby (1979) in an attempt to define total quality management, viewed it from both customers and manufacturers points. To him, the capacity to ensure strict adherence to specification or product basic requirement is termed total quality. This was further elaborate in his statement that total quality is built and sustained when the product or service is done rightly at the first time with no defect. The rest then lies with ensuring sustenance. He further summarised his words by saying that to achieve the notion of zero defects, it is highly imperative that every organization should strive to inculcate a prevention-based system into their organization process and to him since quality is a boundless idea with little or no marginal cost, ensuring it will significantly save enormous resources accruable through production wastes, returns, recalls or reworking.

Ishikawa (1985) another quality expert argued that quality management is characterized by the strategic goal i.e. the long-term goals of the organization that are focused on customer’s preferences such as tastes, likes and even applications. He explained that the goal of every industry is to reap their investments immediately, though, this may be possible in some cases, but however, quality initiative may take a little longer time to pay back.

Deming (1994) while trying to define TQM advocated that the issue of cost should also be paramount, and to that, he explained quality from a trust angle which translate to the

extent to which consumers can rely and depend on the product or service in facilitating a certain level of utility with minimal cost.

2.2.2.1 Evolution of Total Quality Management (TQM)

In the year 1949, the committee of scholars, government officials, engineers and other seasoned researchers formed by the Union of Japanese Scientists and Engineers (UJSE) to address the dwindling economy of Japan aftermath WWII signals the evolution of the idea of TQM (Powel, 1995). This committee was commissioned to champion a considerate improvement in the quality of lives of the Japanese through product and service standardisation. With the influence of Deming and Juran, the committee created a curriculum on statistical quality control for Japanese engineers (Walton, 1986). In the early 60s, with the support of ‘quality experts’, a broader explanation was given to the term. Quality thus assumed an encompassing status that revolves around all organizational activity rather than its previous limitation to products and services inspections.

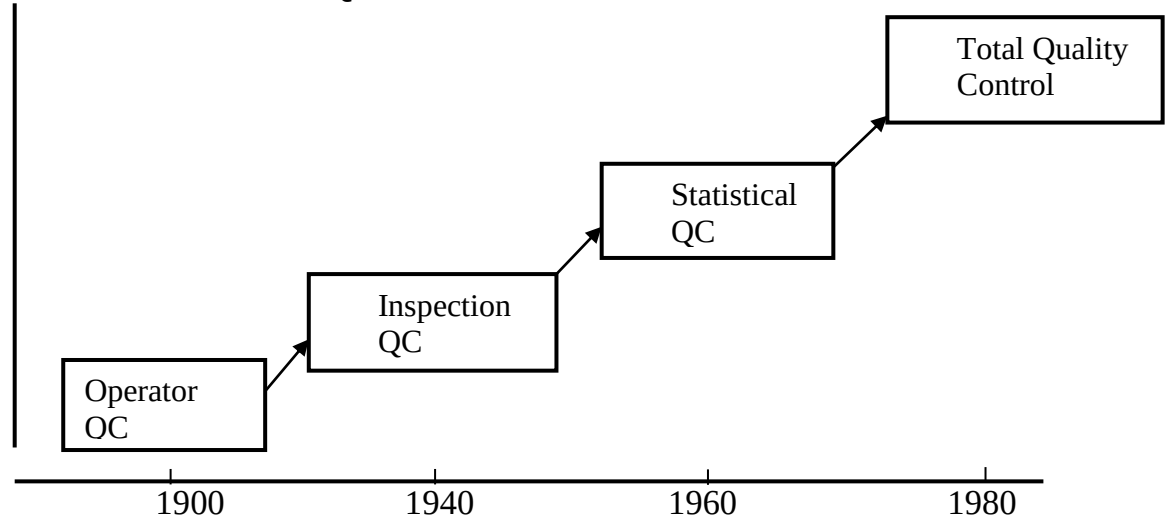
In each department therefore, the need to maintain a specified production standard thus became the order of the day. Sequel to this, departments became responsible for their actions to the extent that the production cost of inferior products are borne by those found wanting in this regards. Without much stress, all sections of the organization became awake to their responsibility of enshrining quality into their practices and operation. By the 80s, news of the new waves in japan reached the Americans who observed that a number of products from japan has significantly surpass those produce in the US in terms of quality specification. In fear that Japan may takeover world markets, American firms began to upgrade their specifications to meet with global best practices as set by Japan (Hayes & Abernathy, 1980).

In this quality supremacy battle with Japan, the US designed a four-stage mechanism of quality control as follows; The quality control mechanism were in;

- a. Operation

- b. Inspection
- c. Statistics, and
- d. Total quality control

Figure 2:1: Evolution of TQM



Source: Evolution of TQM adapted from Feigenbaum 1993.

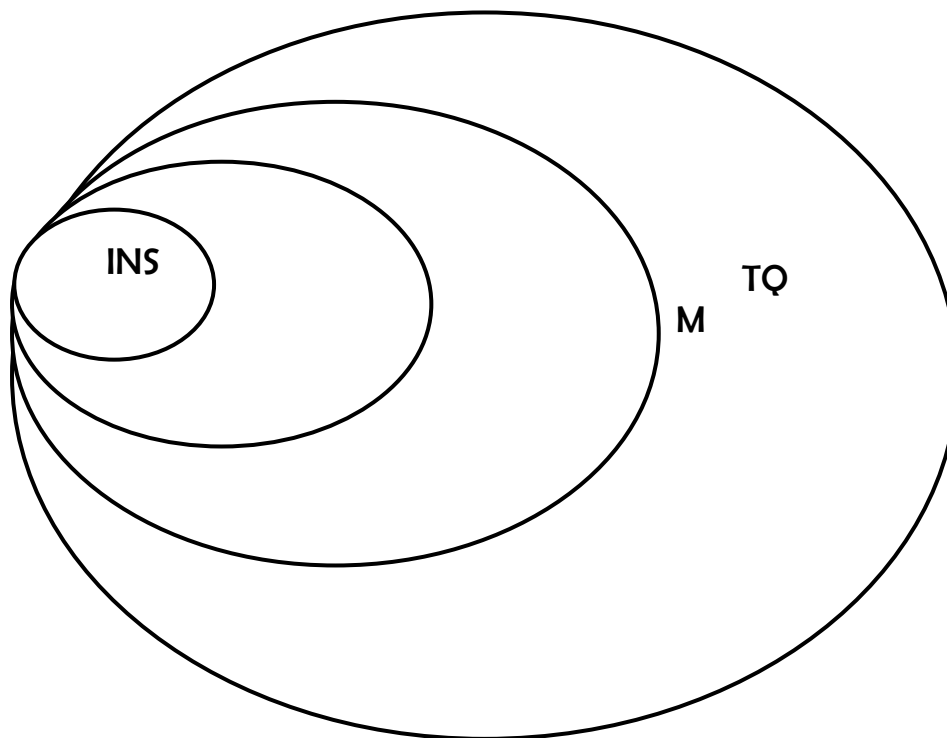
Garvin (1988) argued that up to 1900 as indicated in figure 2.1 above, Quality Control was mainly restricted to the skilled artisans and craftsmen. At this phase, the tag of Quality Control in Operation is attached (Feigenbaum, 1993). He went further to explain that some of the features of this era (Quality Control in Operation) are that quality controls were performed mainly on products in the manufacturing sector without putting in place any third party to monitor the process. In other words, it is the machines operator that performs the dual roles as machine operator and at the same time quality control monitoring.

The second stage in the quality control process is the Quality Control Inspection phase that according to Garvin (1988) was singled out by Fredrick Taylor in the early 1900's as a special assignment for the higher level managers in a bid to effectively run their business. He however argued that managers were able to accomplish such task due to the relativity in the size of the level of production that was small. The mass production that was required for

post-World War II in the words of Feigenbaum 1983 rendered the inspection quality control approach to production ineffective.

In line with Garvin (1988) and Suganthi & Samuel (2012), it is argued that the evolution of TQM began with Inspection, then progress to Quality Control, Quality Assurance and then to Total Quality Management.

Figure: 2.2 Evolution of TQM



Source: Suganthi & Samuel (2012).

According to Suganthi & Samuel (2012) the main focus of each of the above stages is:

Inspection (INS)

- i. Identification of outliers
- ii. Rectifying/salvaging
- iii. The approach of end of pipe and
- iv. Justifying the End with the Means

Quality Control (QC)

- i. Processing of performance data
- ii. Planning of Quality specifications
- iii. Search for appropriate statistical tools
- iv. Instruments for quality control design

Quality Assurance (QA)

- i. Quality manuals
- ii. Certification of System
- iii. Quality costs
- iv. Documentation

Total Quality Management (TQM)

- i. Customer centred
- ii. Employees engagement
- iii. Sustained improvement
- iv. Performance measurement

In figure 2.2 above, Suganthi and Samuel (2012) explained that inspection was one of the main tools used to check quality by the department saddled for that responsibility after the final stage of the production process, inspection will be conducted to check for any item or product that do not conform with specifications and such item is removed and rework or thrown away when its beyond repairs. This again will translate into additional cost for the organization and that invariably contradicts the profit maximization objective of an organization.

As a way forward, the authors argued that organization introduced quality control methodology by collecting data and relying on statistical techniques in analyzing quality

control process. This obviously served to an extent but nevertheless, it has its own challenges. Overcoming those hurdles led to the introduction of Quality assurance where documentation was given priority, certification procedure was adopted and organizations that excel in quality products were awarded certificate by international bodies such as International Standards Organization (ISO). A similar body was introduced in Nigeria, Standard Organization of Nigeria (SON) to award certificate to organizations that comply with ISO 9000.

The last on the hierarchy of quality system is TQM as with it, customer focus is the target of every organization in line with the popular saying that customer is the king. In TQM, every member of the organization is involved and motivated to aspire to a common vision.

2.2.2.2 Quality Control

Quality Control (QC) is the practice of control activities to achieve the production of quality goods and services. It can also be viewed as the process of directing, regulating, checking and monitoring work activities to achieve manufacturing quality objectives.

In the words of Feigenbaum (1983), QC is the procedure for meeting the quality goal , his explanation is based on the PDCA management cycle while Ishikawa(1985), emphasized more on the economical aspect of quality control.

According to Ishikawa (1985) from whichever perspective quality control is being viewed, the fundamental issue is that it must have to be economical and the focus must be on customer satisfaction. From Ishikawa definition of quality, it can be deduced that the following are very crucial:

- a. Consumers' expectation predict the quality standard
- b. Comprehensibility in the definition of Quality
- c. The price must be taken seriously when evaluating the quality of such product or service.

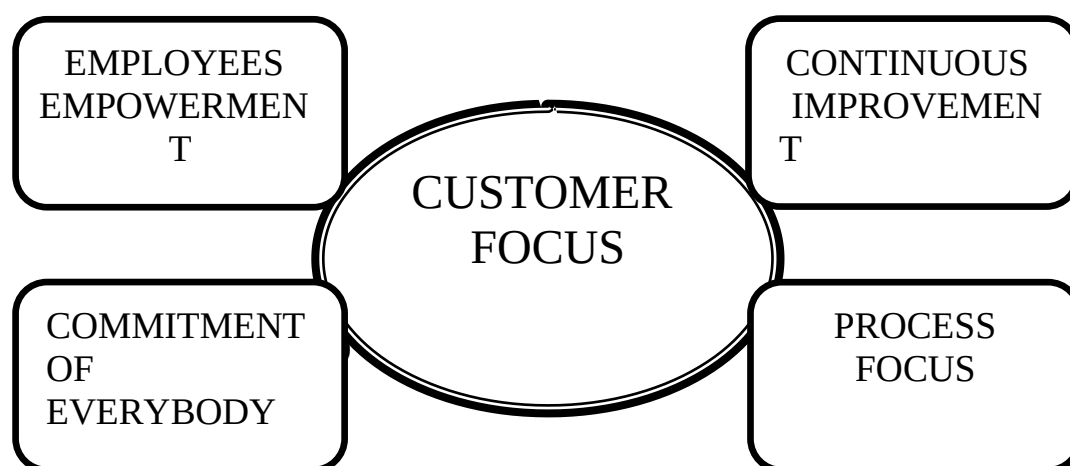
In conclusion to this therefore, Ozek & Asaka (1990) view QC as a clear description of a job in terms of its requirements and specification with a view to planning effectively how the desired job objectives will be achieved efficiently.

2.2.2.3 Core values of TQM

TQM has become an irrepressible management technique tool attracting wide attention from organizational experts especially in the production sector. It has become an important and pivot tool used worldwide by renowned companies over the years to improve on their quality status.

However, reducing TQM to a few numbers of key principles in the words of Jacqueline (2010) portends some inherent dangers. Nevertheless, concentrating on a number of TQM will make it friendlier for understanding and application. The whole idea of TQM rests directly on three cardinal principles of consumer centred; rapid and sustained improvement in the product and teamwork (Dean & Bowen, 2008 and Hill & Wilkinson, 2009). Mostly, TQM core values shall be discussed as presented by Yang (1997).

Figure 2:3 Display of TQM core values



2.2.2.4 Customer Focus

The top priority of every profitable business venture is customer satisfaction as without consumers to patronise a product or service, no business will survive (Galgano, 1994). The most important being for any business organization is the person or individual that purchase the product of that organization since without the buyer, the entire manufacturing process will become meaningless.

Ume (1979) states that a company's strategy, tactics and focus must be patterned along the needs and values of the customers. Arising from this, organizational staffing policy, product development programmes and marketing strategies must support the initial values and needs of the consumers

In any business outfit, customer is said to be the king and they are “always right” since they are the major propeller of organizational performance. In focusing on consumers' need, organization should target three major principal areas, which include:

- Attract more customers
- Making them happy
- Retaining them.

It is a known fact that customer can only be attracted only when they are satisfied with the values offered in return for payment made and once they are convinced that the quality of the product/service meets their expectations, their loyalty can be guaranteed. In view of the relevance of quality to the consumers, products and services must therefore address this to match the needs and values of the clients (Oakland, 1993; Shiba et al.,1993 and Dahlgaard et al., 1994).

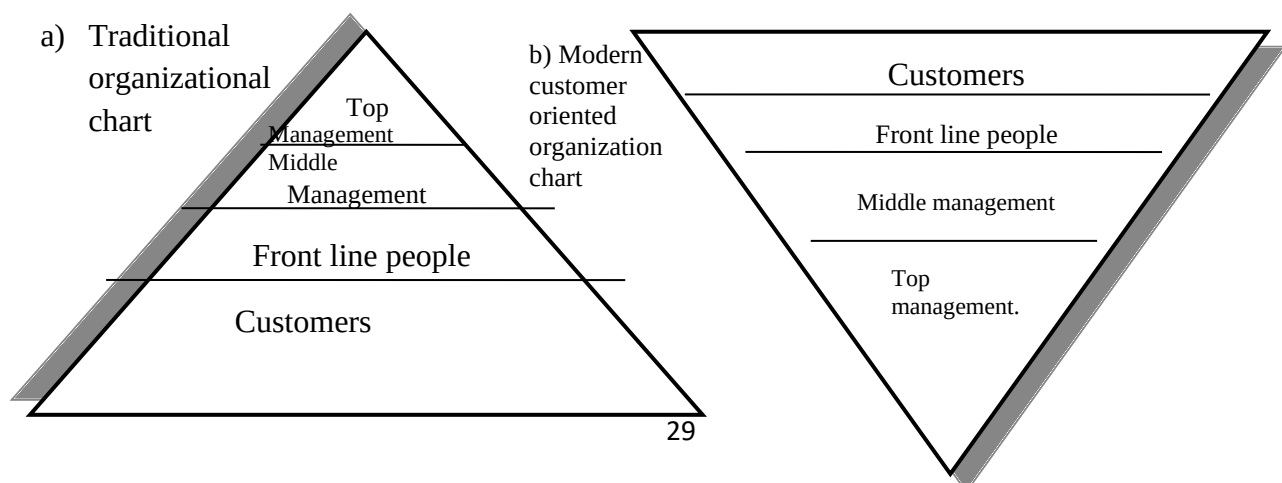
In satisfying customers' needs, University authority must focus on strategic planning and conduct a thorough analysis of employers of labour survey by identifying what they expect from a university graduate and trying to fill in the gaps.

Focusing on customers' satisfaction is not limited to those outside the organization. Rather internal clients must also be factored in as many products attracts consumers even from the production industries (Ross, 1995). In furtherance to this, Dahlgard (1998) concluded that obstacles found with consumers within the organisation should gain the foremost attention of the management before focusing on those outside the business as the quality most cherished by those outside are made possible by these internal consumers.

In an attempt to satisfy customer needs (employers of labour and even students), it is important that University authority should realize that perception is central to the decisions of the customers and when a gap is allowed to thrive between consumers' expectation and the standard of products or services rendered, the relationship may be severed. Subscribing to that notion, Suganthi & Samuel (2012) highlights the relationship between customer perceptions of products features and the degree of relevance offered by the product technically. This he described as the customer window.

In recognition of the importance attached to customers' needs which have to be taken into consideration when decisions on design and production is made. Invariably therefore, organizational decisions have to be patterned along the path consumers' need if maximal sales are to be recorded. To better demonstrate this, Kotler (2006) proposed an inverted organizational chart (Figure 2.4 below) that positioned the customers at the top rather than below the other stakeholders in hierarchy.

Figure 2.4 Modern versus Traditional organizational Chart



Source; Kotler, 2006

In figure 2.4a above, top management are at the top of the organisational priority while customer are placed at the bottom of the ladder but considering the importance of customers to an organisation, Kotler (2006) turn the pyramid upside down (figure 2.4b) with customers occupying top most position.

In support of that, Ishikawa (1985) argued that decisions regarding what to produce in detail specification must emanate from the observed expectation of the customers if the business is to thrive. While Evans and Lindsay (2005) concludes by saying that the consumer has therefore assumed a central judgement role on issues having to do with the quality specification of the product or services. It is when this is realised that a sustained customers' loyalty and patronage can be guaranteed.

In higher education, two types of customer can be identified: external and internal. The external customers are made up of parents of students, corporate organisations and the host community while the internal customers consist of academic and non-academic staff.

2.2.2.5 Sustained Improvement

Improvement is a continuous journey without a definite end and for any organization to remain relevant in the competitive world, they must emphasize on new discovery on how to satisfy their customers. Since no one at any point of time can say perfection has been achieved, quality improvement will ever remain a continuous process.

Juran (1989), states that product or service improvement is considered important when an organisation intends to address the identified defects resulting in complaints from the customers. It could also be embarked on when there is sporadic change in the organizational objectives, structure and procedure. In the same vein, Dahgaard *et al*; 1994) asserts that product improvement has the capability to reduce the defects so identified when removing it

in its entirety is impossible. Therefore, Kinlaw (1992) submitted that a sustained improvement of a product must be seen as an integral part of organizations performance.

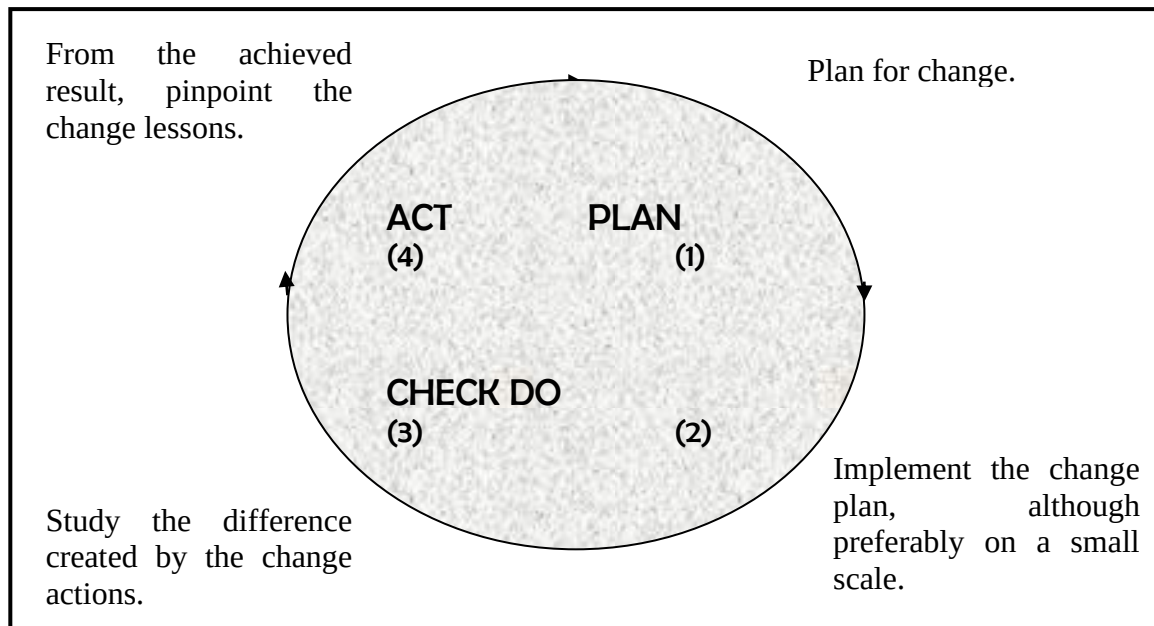
Improvement can either be small but consistent or a sudden drastic change periodically. Kinlaw (1992) suggests five different improvement strategies which include:

- Rapid response to identified defects
- Avoiding recurrence of addressed defects
- Improving on existing technology and techniques either by upgrading or replacement
- Periodic experimentation in sought of operational efficiency
- Exploring creative ways of attracting sustained patronage from customers.

Since perfection can never be attained, organization must evaluate their performances while seeking for ways to boost it. Two approaches that can be employed by organizations to achieve continuous improvement are: (i) Deming Cycle known as PDSA Cycle and (ii) benchmarking.

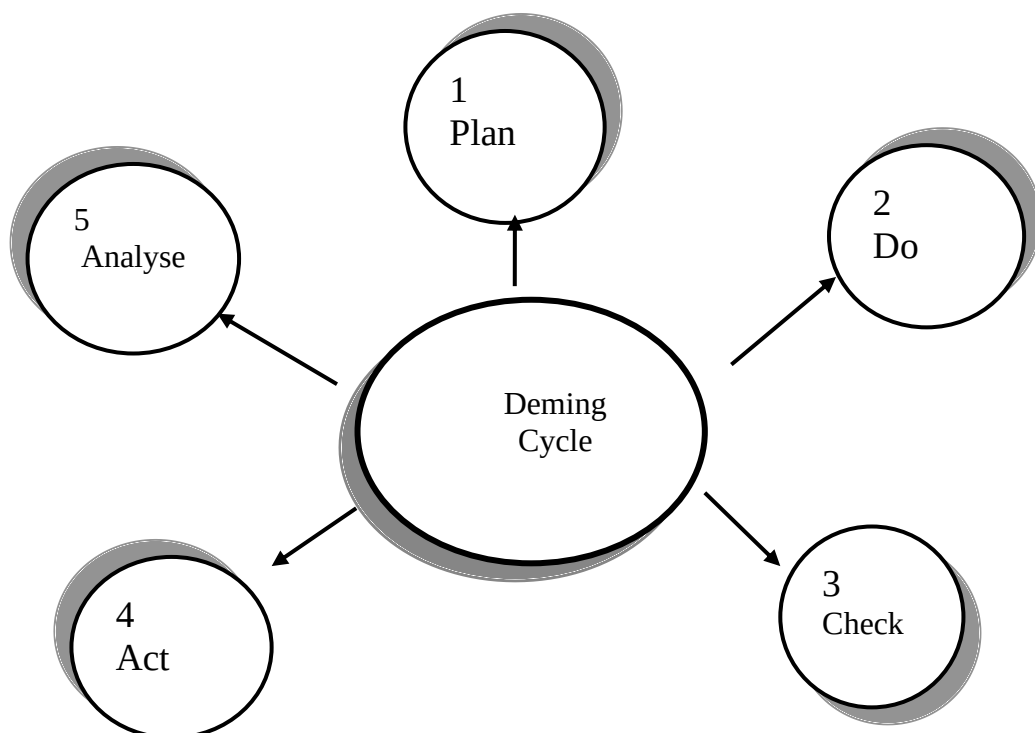
One of the devised model for process analysis and improvement is the PDSA Cycle which is divided into stages of plan, do, study and Act (Deming, 1994).

Figure 2.4 (a) Deming Wheel



The above model (figure 2.5a) can be modified by adding the fifth stage – the analysis stage which invariably will act as a feed-back for the organization.

Figure 2:5 (b) Deming Cycle



At the planning stage as it can be seen in figure 2.5 (b) above, the organization will have to conduct – consumer research, know what exactly the consumers’ needs while using it

to create an acceptable product line. The second stage is to produce the product (Do). Thereafter, the organization will have to scrutinize the product in a bid to ensure that the planned specification is met. The (Act) stage is to create awareness for the product while the final stage (Analyse) is to analyse how the product is received in relation to its cost, quality, colour, packaging, and size. This is done in an attempt at discovering areas of improvement in the product.

The second approach towards attainment of continuous improvement is benchmarking and this is the systematic observation of the business activities of other companies that are considered the “best” in the industry. Organisation must as a matter of importance periodically engage in self-assessment and benchmarking to drive continuous improvement (Nosakhare, 2000). Sharing the same view, Irechukwu (2010) concludes that benchmarking can facilitate a sustained improvement in product and services and if further handled with the needed care, it can even enhance the delivery mechanism.

2.2.2.6 Employees Involvement

Prior to the current age, employees are always sceptical to identify problem but contrarily to that, in the new concept under TQM, employees that can identify problem are rewarded so as to be a point of attraction and interest to the employees to be more diligent and proactive in discharging their duties.

Through TQM therefore, the traditional duties of the employees has been remodelled from mere implementation of programmed set of ideas to that of actively participating in organizational decision making mostly related to products. In the words of Kennedy & Schleifer (2006), collaboration drives innovation and where indications of collaboration is absent, hardly can anything new emerge from such an establishment.

While describing empowerment, Hamburger, McKenna & Tal (2008) links it with the combination of competitiveness and individual strengths to navigate through social policy and change. Hence, TQM requires that every member of the organisation key into the idea and to achieve that, they have to be carried along. TQM must ensure that all hands are on deck by aggregating the trust and dedication of the employees through an encouraged collaboration among departments (Hassan & Thamizhmanii, 2010).

Marchinton (2001) identifies the following features that could be found in an effective involvement scheme for employees:

- i. Through the deliberate action of the management, employees involvement is facilitated
- ii. As a kind of natural instinct, greater involvement is desired by the employees.
- iii. Through collaboration between the management and the employees, unity of purpose is achieved
- iv. Through employees' engagement, high productivity and devoted commitment is made possible.

Evans & Lindsay (2005) emphasised that the highest level of trust is achieved when the employees are empowered to participate in decision making regarding customer's satisfaction excluding all the bureaucratic hurdles known with redundancy and in efficiency.

2.2.2.7 Team Work

Another major principle stressed by TQM is tagged the principle of "team work approach". As the name implies, it recognises the contributions of every member in the attempt to arrive at the attainment of organisational goals. Teamwork is the collaboration between managers and subordinates, between the organisation and their suppliers. Anderson (1993) emphasised that the key to organizational success lies in the strength of its workers

not as individuals but as a team. It is therefore important that all employees recognise this while aspiring to make the organisation excel.

Stressing the importance of teamwork in an organisation, Oakland (1993) stated that the industries and commerce related establishment are filled with complexities beyond the capacity of an individual; hence, the need for teamwork which is a practical approach to organisational improvement.

2.2.2.8 Process Focus

Every product whether good or bad is an attestation of the processes it passes through. With process focus philosophy, the target of every organisation shouldn't be on the result but instead on the process of getting the result i.e. the result should be the dependent variable, after all production is a process of garbage in garbage out, the output is always determined by the input.

In the words of Shiba *et al.*, (1993), process is central to outcome. With TQM, bad products should not only be detected and rework or thrown away in the extreme cases but rather management of the organisation should find out the likely reasons behind the production of defective products. Since every waste product constitute loss to the organisation.

2.2.2.9 Top Management Commitment

Dale *et al.* (1997) agreed that total commitment is required when TQM is adopted in an attempt to boost the product's quality. Management staff at the top echelon should put the goal of the organisation into consideration when product quality enhancement decision is required. Setting the quality effort's ball rolling remains the exclusive duty of the organizational management by initiating plans for implementation. Emphasising the importance of top management role in an organisation, Tenner & Detoro (1992) viewed them as advocates and teachers whose role can certainly not be quantified. Commitment according

to Sugganthi and Samuel (2012) is from the heart that can be exhibited by action. Top management must act like role model that the subordinate can emulate, they must lead by example. In every meeting conducted, the chief executive officer (CEO) of the organisation must talk about quality by expressing his personal commitment.

As a source of encouragement or commitment, award schemes for quality work can be initiated by the (CEO) and the CEO himself will follow quality practices in all his activities.

All decisions taking must be based on facts. To satisfy customer desires every decision of the management should be based on fact findings that can be measured and verified. If the essence of being in business is to satisfy customers needs, such needs must have to be identified before settling down for production.

2.2.3 Conceptual Analysis of Quality Assurance in University

In a bid to give a befitting definition to quality assurance, a number educationists have offered varied suggestions. For instance, Allele-Williams (2004) explained it to be the pursue of uniqueness and distinction in the academics or academic environment. Similarly, Anil Kumar, *et al* (2006) sees it as the degree of conformity to design specifications. Quality assurance also connotes the process of persistent alignment of product or service to specification which implies to doing the best at the inception and striving to sustain it.

In the universities, quality assurance according to Ajayi and Akindutire (2007) deals with the capability of the academic institution to meet and even surpass the expectation of the stakeholders. This idea was better advanced by Oderinde (2004) that categorised quality assurance into: internal and external.

In his explanation, the idea of making sure that the objectives of the institution is achieved is known as internal quality assurance. It also connotes the insistence of the

realisation of the internal policies of the university, which will in turn lead to the attainment of its developmental agenda through research, teaching and community service.

The external on the other hand covers the national mandates assigned to the ivory tower as the custodians of knowledge and the driver of innovation. Ensuring maxima quality in education is therefore a prerequisite for national development and growth.

In furtherance to the definition of quality assurance, especially in the tertiary institutions, Okebukola in Nkang (2013) opined that is the concerted effort geared towards an improvement in teaching and learning quality which, is achievable through a fair recruitment process. In the same light, Sharma (2013), related it the process of ensuring necessary confidence in the mind of the stakeholders as well as to top management that all concerned are carrying out their jobs effectively and that the product quality is as per customer requirements. In cognizance of the importance of quality assurance, some organizations create a separate department to perform the following functions:

- Plan, develop and establish quality policies
- To ensure that products of prescribed specifications reaches the customer.
- Develop quality assurance system and regularly evaluate its effectiveness
- Organize training programs on quality

In educational discussion therefore, quality assurance covers the entire process through which university management guarantees effective and efficient educational service delivery that will address the need of the society. It is only by doing that that the confidence of employers of labour will not only be gained but also equally be retained.

In line with the above, Becket and Brookes (2013) states that even in some countries, peculiar agencies are created to monitor the adoption of international best practices in the higher institutions. In Nigeria for instance, there is the National University Commission (NUC), in United Kingdom, there is the Quality Assurance Agency (QAA), in Australia,

there is the Australian Universities Quality Agency (AUQA). In addition to ensuring that quality is ensured, these bodies conduct periodic inspection, auditing and monitoring of the higher institutions. Though the NUC in Nigeria has similar mandates with its foreign counterparts but her level of success and achievement in that respect is still below expectations considering quality of education in Nigeria presently when compared with countries like Ghana, South Africa.

2.2.4 Improving Internal Quality Assurance in Nigerian Universities

Every university has an internal quality assurance arrangement that is embedded in the act creating each of them. This internal control system monitors the system to make sure that quality is enhanced. The setting up of the internal mechanism is the exclusive duty of the university senate as empowered by the creating act. This covers laws, rules and regulations guiding the conduct of admission process, employment process, examination and even the appointment of external examiners are issues that must be tackled internally to make it possible for the realisation of quality educational system that will guarantee substance in teaching, research and community service.

Other important considerations that can easily affect the internal quality assurance arrangement in universities as noted by Archibong (2012) are:

i. Adherence to carrying capacity

It is not uncommon to find some universities admitting students above their carrying capacity. This eventually leads to overstretched infrastructural facilities, overcrowded classrooms that make learning to be uninteresting. Most universities establish programmes with a reasonable percentage of their academic staff on adjunct.

ii. Improved staff management and development

Another major challenge to quality in the university system is that some universities erroneously assume that producing graduates in large numbers equates having competent

lecturers and up-to-date infrastructure, whereas, quality is only ascertained when the graduates are able to compete effortlessly with their contemporaries from other universities and even countries. To attain quality, a graduate assistant lecturer should be under close supervision of a senior lecturer in the same department who will act as a mentor. Training and mentoring is even not limited to the lower rungs of the academic ladder, rather it extends to even the middle cadre academics. To be up-to-date therefore requires that avenues be created to facilitate educative teaching procedures like facilitation and peer review.

iii. Curriculum review:

The need to have a dynamic curriculum that is in line with current situation in the economy can certainly never be over emphasised. Any curriculum that can not satisfy the aspirations of educational sector various stakeholders especially employers of labour should be adjudged wanting. University curriculum should be flexible so as to create opportunity for review. The genesis of some of unemployable graduates could be traced to lack of in depth curriculum being used.

iv. Student involvement in quality assurance process: One common method used by universities in Nigeria is involving students in quality assurance process in organising post UTME for candidates that have preference for their schools as to them all concerns for quality in the academics starts and ends there (Archibong, 2012).

Student participation in the processes having to do with quality assurance in university system is very important since they provide valuable feedback on instruction effectiveness which can add value to teaching learning process and methods.

2.2.5 Cost Implication of Quality Assurance in University System.

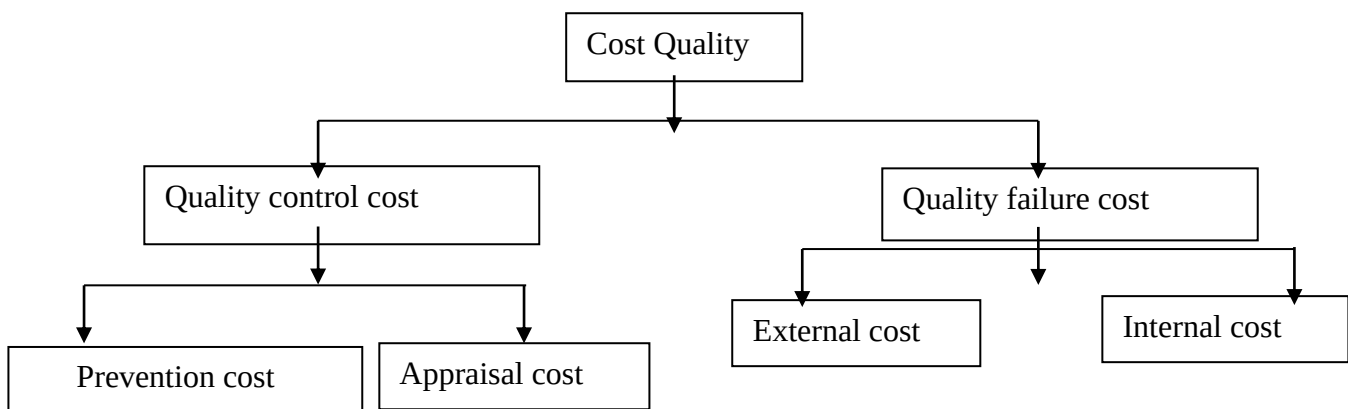
A cardinal reason for why quality appears to be the watchword of many organizations nowadays is probably as a result of the fact that the consequences of producing goods and services that are not qualitative enough to stand the test of time will certainly mar the image

of the organization. Robin (2009) asserted that all tolerated errors, delay, sabotage and organizational conflict directly impedes financial and time prudence in the organisation and if not properly and adequately addressed, loss of customers may be witnessed.

In an attempt to define cost of quality Suganthi *et al* (2012) viewed it from a wider perspective. To them, quality cost goes beyond monetary loss on manufacturer part but also it includes any loss or damage incur by the user and the community at large.

One of the most obvious consequences that can occur whenever an organization produces poor quality products is that it creates customer dissatisfaction that can end the business. However, quality control can be classified two categories of what the organization will incur in the process of producing high standard and qualitative goods and the second category is what it will cost the organization for not producing high standard goods.

Figure 2:6 Cost of Quality Chart



Source: Khanna, V.K., Vrat, P., Sahay, B.S., & Shankar, R. (2009)

From the above Figure 2.6, it can be observed that *Cost Quality* is sub-divided into the *Cost of Quality Control* and the *Cost of Quality Failure*. In furtherance, the cost of quality control can again be sub-divided into two: the cost of prevention and the cost of appraisal.

While trying to avoid the production of product with inferior quality, the cost incurred in the process is referred to as the cost of prevention. These covered the cost of; planning, processing, design, training etc. While the cost of appraisal is incurred in the process of

rectifying defects noticed in products. These also revolved around costs of; inspection, testing and auditing to ensure that the agreed quality standard is maintained.

The cost associated with quality issues noticed by the consumers is known as the external cost of failure. This is to curtail a situation where the loyalty of customers reduce in view of the quality defects observed by them. To prevent this damaging scenario, the external cost of failure is expended. They include customer complaint as regard the product most especially on the negative side, product returns and repairs.

The internal factors are mostly observed when defects in products are noticed before the product gets to the consumers. A good example of this is when is the need for rework when significant defects are detected. In such reworks, the cost of correcting the defects and when the products are bad that they cannot be reworked, they are eventually thrown away as scrap and this might have cost the company, materials, labour and machine cost.

Table 2.2 Quality Cost Chart

S/No.	Cost Categories	Connotation
1.	Cost of Prevention	This covers the expenses expended in the process of domesticating and enforcing a quality plan.
2.	Cost of Appraisal	This involves the expenses incurred in product auditing to detect the required quality specification.
3.	Cost of Internal Failure	In the quality implementation process, certain level of inconsistency and non-conformity with the expected specification is possible. The cost of reprocessing to ensure that all products meet the specified rating is referred to as the cost of internal failure.
4.	Cost of External Failure	This is the reversed event of the

		internal failure scenario. This covers the cost of return, repair and recall of products whose quality non-conformance was detected outside the producing organisation.
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Source: Khanna, V.K., Vrat, P., Sahay, B.S., & Shankar, R. (2009)

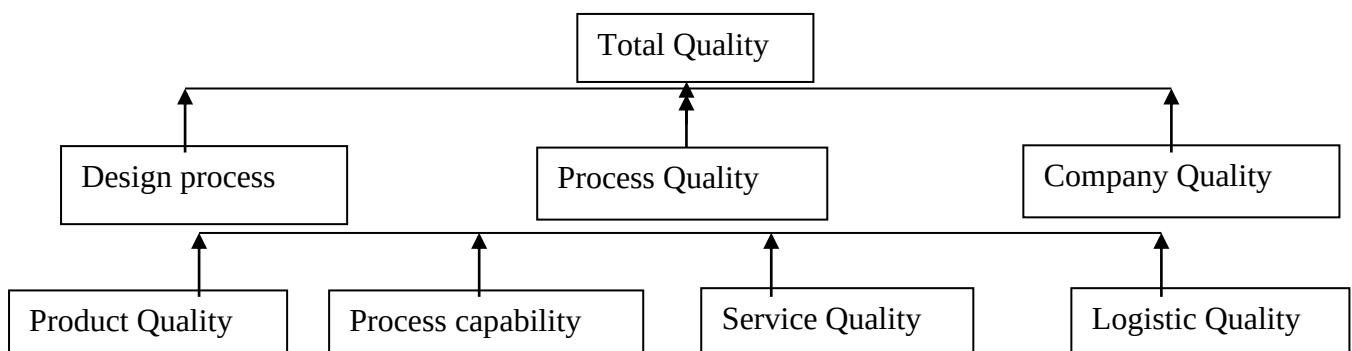
2.2.6 TQM Models

TQM has been represented in a variety of models as a philosophy representing modern competitiveness by different authors and researchers prominent among these include: McKinsey of TQM, Taguchi's quadratic loss function, Anderson consulting TQM model, Crosby's 14 steps of TQM, Oakland's Model of TQM, Juran Quality Trilogy and Deming chain reaction etc.

2.2.6.1 McKinsey TQM model

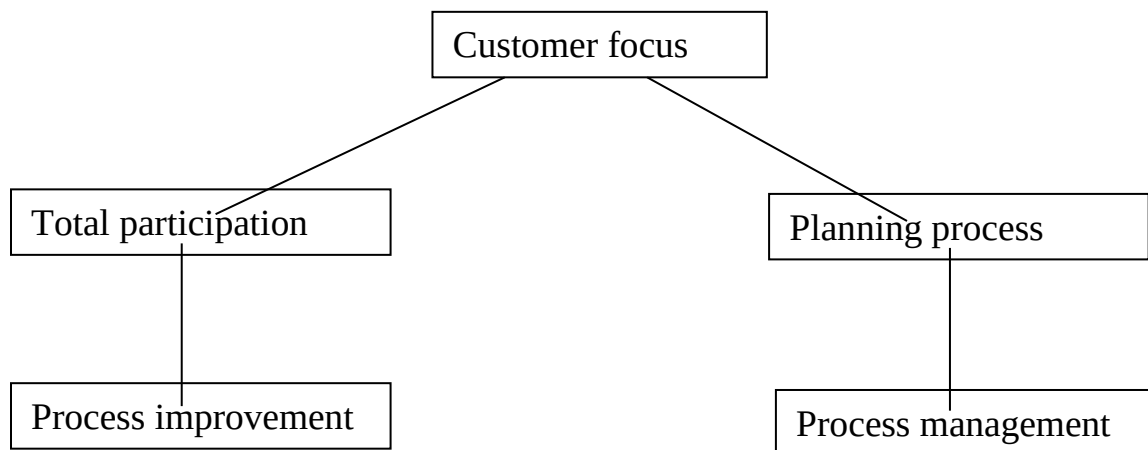
Graham (2013) describes McKinsey TQM model as a model based on design process, quality process and company process. The process quality can be subdivided into four comprises of product quality, process capability, service quality and logistic quality.

Figure 2:7 McKinsey TQM Model



Source: Khanna, V.K., Vrat, P., Sahay, B.S. and Shankar, R.(2009)

Figure 2.8 A Simple TQM Model



Source: San Diego Business Journal (1994) adapted from Adeoti (2007)

As it can be seen in the above figure 2.8 model, satisfaction of customers is always the focal point of every organization. To achieve that, the management must have to put in place a comprehensive plan that will also integrate absolute commitment of the management team and every member of the organization. Organizations practising TQM will always emphasize on continuous improvement knowing fully that the most outstanding product today in terms of performance may be rendered obsolete tomorrow as a result of technological improvement.

Since management is simply defined as the act of getting things done through people, TQM organization equally subscribe to the opinion that for an organization to achieve their goals every member of the organizational staff must be involved in the process.

Table 2.2: Summary of the TQM Models

TQM Model	Focus
Crosby (1979 and 1992)	His work focused on strict adherence to pre-set quality standard with zero tolerance for defects. In addition, the work stressed that three principle guided the law of completeness and these were the need to cause employees, suppliers and consumers to be successful.

Feigenbaum (1961 and 1982)	This works focused on Quality Cost and Total Quality Control. It further listed Motivation, Material, Money, Men, Markets, Management, Machines and Mechanization as the determinants of product quality.
Ishikawa (1984)	This work instead focused on all organizational participants as embedded in the Company-wide Quality Control (CWQC). It further extended its scope to training and development, quality circle, and quality audits twice a year by the organizational executives.
Taguchi (1986)	Taguchi rather examined the effect of substandard product in the society as characterized in product performance variations.
Juran (1988)	This study was on the prerequisites for quality promotion through a statistical approach of planning, control and improvement. It further explored the organizational human capital required in quality management.
Oakland (1989)	Oakland examined the connection between the customers and the organisation. This he did by exploring the various organizational stakeholders like the shareholders, suppliers, customers and the staff. He further advocated teamwork, adequate documentation and the use of statistical tools for quality control.
Deming (1990)	Deming advocated the realization of quality through purposeful leadership, variation reduction and sustained product improvement through the Deming cycle (Plan-Do-Standardize-Act cycle)
McKinsey (Graham, 1992)	Design process. Process quality. Company quality. Elements of process quality have been defined as: product quality, process capability, service quality and logistics quality
Leonard and McAdam (2001)	They advanced the Five model TQM framework which were the points of application model, strategic drivers' model, profiles model, environment model and the lifecycle model

Source: Sunghati and Samuel (2012)

2.2.7 TQM in University Education

The concept of TQM is generally believed to be that of getting every member of an organization to evaluate on continuous bases how improvement can be achieved.

All organizational members must show sign of absolute commitment to the attainment of the pre-set organizational vision and customer satisfaction should always be the priority of the organization.

When TQM is applied in a class setting “Teachers” can be used to substitute for “manager”, “students” to substitute for “customers” since they pay for the services rendered (education) which they receive. Also, teachers can be used to substitute employees equally as classroom culture to substitute organizational culture.

TQM in a class setting according to Babbar (1995) can be described as the a situation involving an instructor who adopted the total quality approach to teaching in a bid to ensure that learning outcome is facilitated while the students are equally equipped to serve their fatherland in the best possible way.

However, Becket and Brookes (2008) argues that it is very challenging to ensure quality in the higher institutions because the idea of quality to the stakeholders involved varies significantly while Cheng & Tam (1997) in Becket & Brookes (2013) jointly concluded that ensuring quality in the higher education sector is rather controversial and vague than being a reality.

However, Demings14-point principles of TQM can perfectly be adopted in university educational system, since it is assumed that every members of the university (stakeholders) will want to contribute their best towards the improvement of their products.

The 14- point principles are as follows:

- Permanence purpose: university should create a stable mission statement that will focus on skill development, motivation and innovation promotion among students

with a view to getting them ready for the challenges of national development. To develop a stable mission statement requires understanding of why an organisation is in existence. In line with the university mission, the faculty can develop their own missions and the department in that hierarchical order.

- Cease independence on mass inspection. Organisations should understand the extent to which inspection can help curtail products of substandard quality. As inspection assists in preventing substandard product from getting to the market, a number of expenses is still incurred in this process. On the administrative side of the university, depending on mass production is like having too many checks and balances, the management should look inward and check if any process requires a total change or improvement in a bid to cut down the rate of product inspection.
- Cost consideration should not be the only criteria for awarding contracts. This usually happens when projects are announced for bidding, the focus is often on the proposal but if quality specified at the point of awarding the contract is not put into implementation, the cost of correction if added to the initial award project cost will amount to double costing.
- Break down barriers. This can only be achieved when cooperation rather than competition are encouraged. Staff should be encouraged to form a team in breaking barriers. For instance during the screening of new student, every faculty should have representative on the boards. Ensuring that many people participate in the decision making is an indication that better decisions will be made.
- Do away with all indications of infatuations.
- Remove barriers to pride workmanship: hindrances that made create a gap among colleges, faculties and departments must be presented. There is every tendency that if

a secretary for instance is granted the chance to be part of decision making having to do with her job will make her to put her best effort in the job.

- Organisation-wide involvement: This is the process whereby all members of the organisation are covered in the skill enhancement programmes so organized by the institution.
- Adoption of a new philosophy. It is expected of every organization to have a philosophy, mission and vision. The mission should also reflect the priorities of the organization and also what every succeeding chief executive should adopt.
- Effective leadership strategy: Deming (1986) asserted the essence of a strategic leadership is to ensure that coherence and orderliness is established in the organisation thereby bringing uniting the employees towards the goals of perfection. To attain quality in the university, leadership must be focused with integrity and every member from the vice chancellor to the lowest man on the ladder must be working towards the same objective. The leadership must possess the ability to carry every staff along in decision making.
- Institute training on the job: It is generally believed that you can only give what you have. For lecturers to be effective in discharging their duties and responsibilities effectively, the issue of training and re-training should be on the priority list of every university.

Lecturers should be encouraged to attend both national and foreign conferences where new ideas can be learnt. According to Lunenburg (2010) cited in Salami (2013), the need for training in the educational institution is for three basic reasons:

- i. When new curriculums are designed, there is the need for academics to be trained along this trend to create the needed familiarity.

- ii. Equally at the introduction of new strategies, an effective training is needed to bridge the emerging gap in the implementation of the new strategies.
- iii. In addition, when new management is inaugurated, they required training to enable them fit properly into the management.

It is not uncommon that some lecturers in the university do not have computer proficiency. Shobowale (2012) cited in salami (2013) concludes that the ICT literacy rate in Nigeria is less than 10,000,000 out of a population of about 170,000,000 people.

- Continuous improvement

Since quality is a continuous journey that has no end, regardless the level of successes achieved, management should always have the believe that there is still room for improvement, curriculum must regularly be reviewed to be in tune with emerging challenges. Lecturers must be compelled to attend conferences and seminars, research should be encouraged by the university authority library must be furnished with recent and updated materials such as journals and relevant texts.

- Drive out fear. Fear always in any system, creates barrier to improvement efforts. It is not uncommon to see that some managers or administrators act like semi-god that will always constitute fear into their subordinates. Lecturers and other non-academic staff find it difficult to point out problems or suggestions, because of fear.

For quality to be attained every stakeholder must be free to make their contributions/suggestions.

- Numerical quotas for staff should be eliminated. The issue of quota system if possible should be eliminated completely in the university most especially for academic staff if quality is to be attained. Deming (1986) refers to such practices as distractions and counter-productive. Appointment of lecturers should be based on merit.

2.2.8 Challenges of TQM practices in Nigerian Universities

Over the years, Universities in Nigeria were categorized as an important sector in the supply of seasoned manpower needed to achieve development in Nigeria. To that, Ume (1979) concluded that university training is principally focused on producing competent manpower required by the society to transform from the current position of underdevelopment to a globally acceptable nation among the comity of nations. The same can no longer be said considering the quality of graduates Nigerian universities are producing of recent.

Okebukola (2006) submitted that over the years, the capacity of Nigerian graduates has gone from good to bad as they have not being able to compete favourably with their counterparts from other countries. In 2004 for instance, NUC conducted a study on the expectation of the labour market from the Nigerian graduates. The study revealed that not only many graduates are roaming the streets unemployed but also shockingly enough, even the few that were lucky to be gainfully employed needs to be specially trained in a bid to equip them for the demands of their job placement. The challenges confronting the educational sector in Nigeria are many but a few of them are discussed as follows:

- a. **Inadequate Funding:** One of the greatest challenges faced by educational sector is that of inadequate funding. Running a standard university education is highly capital intensive that requires huge investments. Poor funding has plagued the educational sector in Nigeria most especially those in the higher institution category and this has significantly curtailed the performance of the academics staff of these institutions.

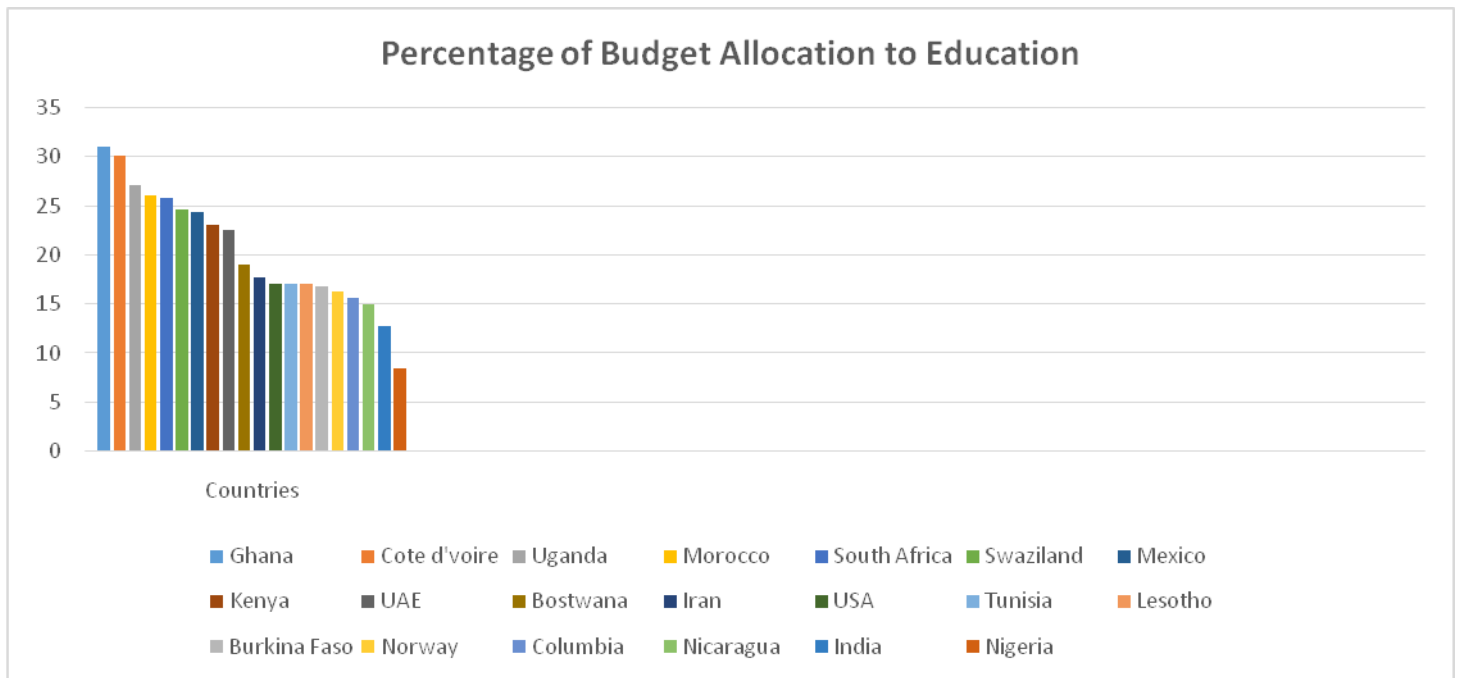
A study carried out by Ivara & Mbanefo cited in Asiyai (2006) revealed that inadequate lecture halls, hostel accommodation for students, well-furnished laboratories, inability to pay salary regularly as and when due and offer research grant. Okebukola (2011) described the pathetic situation of underfunding, which

according to him does not only terminate at infrastructural deficiencies but also has forced many Universities management to engage in so many unwholesome income-generating activities at the expense of research.

He further explained that occurrence of social vices such as examination malpractices and sorting as well as incessant strikes and closure of Universities may not be unconnected, directly or indirectly with poor funding.

In an attempt to re-direct this trend to the right path, several public policies had been put in place by successive governments. For instance, Afe Babalola (2013) stated that in the budget presented to the National Assembly by the President in 2012, the sum of N426.53 billion was budgeted for education out of the N4.9 trillion budgeted for the entire year. Though such a giant stride seems to be highly commendable but yet, it is just 8.7% of the total budget and that invariably made it grossly below the 26% recommended international bodies like the UNESCO. In conformity with the global benchmarks, other African countries like Ghana (31%), Cote D'ivoire (30%) and Uganda (27) in the year 2012 adhered to the recommendation than Nigeria.

Afe Babalola concluded that even in the World Bank survey, Nigeria was placed on the 20th position among the 20 countries adopted in the survey as depicted below.



Source: adapted from Afe Babalola, Nigerian Tribune Thursday, 28th November, 2013.

As it can be observed from chart above, out of the 20 countries listed 12 including Nigeria are African countries. In other words, if the survey had been limited to only African countries, Nigeria would still have been ranked lowest.

Even if the African countries in the survey were isolated, Nigeria will still be on the 12th position. This indicated that allocation for education in Nigeria is lower than what her colleagues in the African continent set aside for it. Mopelola and Samuel (2011) concluded that the issues of poor funding is even made more apparent in the dearth of academic staff, library resources, lecture halls, laboratory equipment and even office accommodation for the lecturers.

b. Enrolment explosion: enrolment explosion is another hurdle challenging the level of educational quality in Nigeria. In some universities, the few available infrastructures have been completely over stretched; classrooms are overcrowded that it is no longer a new thing for students standing while receiving lectures. The sitting capacity of the library can no longer accommodate students; laboratory is not equally left out. Okebukola (2003) as adapted

by Oladipo, Adeosun and Oni (2010) revealed that in the report by the NUC, Olabisi Onabanjo University, Ago-iwoye with excess enrolment of 24,628 students was ranked first among the overcrowded universities in Nigeria.

Undoubtedly, such scenario will definitely affect the quality of education since teaching might not be effective and the probability of recording examinations malpractices will be on the high side.

c. **Inadequate Academic Staff:** the dearth of academic staff that has characterized universities in Nigeria has contributed significantly to the poor delivery capacity of Nigerian graduates over the years. Coombs (1970) and Ajayi (2007) argue that teachers are the hub of any educational system and they are indispensable in the quest for national growth and development. Despite this relevance, academic staff in the university according to National University Commission (NUC) in 2006 revealed an embarrassing and shocking situation of Nigerian universities where out of 72,704 staff in the Federal Universities, only 16,856 are academic staff and the balance of 55, 848 are non-academic i.e. supporting staff. To worsen the situation, a comfortable majority of the academic staff are heavily bottom loaded i.e. lecturer 1 and below contrarily to NUC guidelines as indicated below as it can be observed in the table below.

Table 2:4 Teacher/Student Ratio as Benchmarked by NUC

Faculty	NUC Benchmarks
Agricultural science and Engineering	1.15
Arts; Law; Education; Management Sciences and Social Sciences	1.30
Sciences	1.20

Source: NUC Annual Reports (2013)

Table 2:5 Staff mixes by rank

Rank	%
Professors/Readers	20%
Senior Lecturers	35%
Others (Lecturer I and below)	45%

Source: NUC Annual Reports (2013)

Going by NUC guidelines, 70% of the total academic staff base in a faculty must have bagged Ph.D. (Oyebanji, 2012). From the above table 2.4 it can be observed that the ratio of teachers/students in the sciences is relatively lower than those in the Arts and related courses. This probably is as a result of admission requirements into the various courses and couple with the fact that sciences are practically oriented that involves laboratory experiment which may involve one to one contact.

d. Deteriorated Infrastructure: A reasonable percentage of university infrastructures are either obsolete or dilapidated. Ochuba (2011) concluded that adequate lecture halls, library, office accommodation and laboratories are non-existence while the few available are extremely over stretched and ill-maintained.

e. Political Interference: Another major problem confronting universities today is that of interference. This is much more pronounced in state and private universities where the chief executive of the state or the proprietor single handedly appoint principal officers of those universities without taking into considerations the capability of such person.

f. Brain drain: this is another big challenge confronting universities towards the attainment of quality education in Nigerian universities. The rate by which intelligent, dedicated and committed university staff especially those in the academics leave the shores of Nigeria is very alarming. Some left the classrooms for business world in search of greener pasture. This mass exodus of talents is fuelled by ever increasing frustration that has characterized the Nigerian economy over the years.

g. Incessant Industrial Disputes usually leading to strikes: one of the foremost challenges of the university education in Nigeria is the sustained culture of industrial between the government and the various unions in the universities. Especially those having to do with ASSU, the universities could be under locks and keys for months. In effect, the duration of

students' programmes is extended, staff productivity is aborted and the country's aspiration for development is truncated.

To better put the above scenario in a better perspective, Asiyai (2006) singled out absence or disrespect for university autonomy, degrading condition of service, unimplemented agreements between the Government and the unions and poor funding as the harbingers of industrial conflicts in the Nigerian universities over the years. Disruption of academic programmes of universities affect not just the university' staff and community but also the students who are left at the mercy of two unreasonable elephants in pursuit of supremacy. In most cases a semester's course which ideally should cover 15 weeks are compressed to few weeks. In furtherance to this, Adeboye (2003) noted that national targets of at least remaining at par with other nations are truncated and invariably tampered with the quality of education in the country.

h. Cultism and other vices: Increasing activities of secret cult groups, kidnappers also constitute a major treat to conducive academic learning. In view of the brutal activities of the cultist like maiming, killing, raping and kidnapping over the years, both the academic and the non-academic staff including the students not involved in cultism have continued to live in fear of pre-empted attacks. A number of these attacks do lead to destruction of learning facilities in the school. All these challenges tend to have negative impact on the quality of education.

i. Others Factors: other numerous challenges currently bedevilling universities in Nigeria include secret cults which have claimed many innocent souls in some universities.

2.2.9 Concept of Performance

Performance measurement, both in terms of overall organizational performance and performance of processes, is crucial to the achievement of effectiveness and efficiency in an organisation. In its entirety, organizational performance entails the combination of individual

and group performances in comparison with the pre-set organizational targets. This overall performance is arrived at by ensuring that routine activities are correctly done, proper monitoring is enforced while necessary adjustment required to maintain the expected goal path is ensured.

On the other hand, performance of processes comprises the expected outcome or contribution of an input to overall organizational goals and objectives as against its actual outcome or contribution (Oyebanji, 2012). In the context of this research, attention was mainly on performance processes, which reflects the major objective of the study which was to examine the impact of TQM practices on the performance of academic staff in the Nigerian Universities.

2.2.9.1 Employee Performance

The principal resource that any organisation can boast of remains the employees. Oftentimes, is referred to as people at work, organizational manpower or the human resource. Regardless which name it bears, human resource remains a multi-faceted concepts that has received the concerted attention of organizational scholars. To the industrial psychologists especially from the macro perspective, it refers to the innovative ability or talent obtainable from people towards the creation of a good or service. At the micro or individual level, it entails the overall capability or the inherent effort possessed by an employee which is required for production purposes (Mopelola & Samuel, 2011). In furtherance to the above, Okebukola (2011) noted that most organizational problems are more of social interaction than technical knowhow. This he buttressed by submitting that the success of any organisation depends on the capability of its human resource.

Given the fact that the setting up of every organization is based on a set of pre-conceived ideals, it is pertinent to engage resources such as money, materials, machines and men in

order to achieve these objectives. Even though, each and every one of these resources are important, the human resource is the most important (Oyebanji, 2012). As important as this resource is, so as the evaluation of its performance to meet the organizational goals.

2.2.9.2 Academic Staff Performance

Academic staff performance, as opposed to general employee performance, are those measures of performance specifically designed to monitor the extent to which academic staff are meeting their individual targets and contributing to the attainment of the goals and objectives of the educational institution. Generally, three (3) major dimensions of performance for academic staff are frequently used in the literature, these are: teaching performance, research performance and community services performance (Adeboye, 2003).

2.2.9.2.1 Teaching Performance

As pointed out by Barr (1961), a generally acceptable medium of measuring teaching effectiveness and efficiency is still elusive despite the amount of effort invested by scholars. However, contemporary studies have a kind of uniformity of patterns in their submissions on the various tools of teaching performance evaluation. This cannot be confused for a general agreement among them; rather, they were just areas of intersection in their conclusions. These areas were:

- i. personal attributes of the teacher
- ii. the teacher's skills and performance, and
- iii. the learning outcome.

While commenting on the three tools above, Barr (1961) pointed out that in reality, neither of the tools could guarantee the best result, instead a combination of them usually produce an appreciative result. Even with these tools, Byrne (1962) noted that further grouping of certain

criteria must be observed as he adopted in his works. His suggestions can be summarized into the following headings:

- i. Product criteria. This refers to the observed improvement in the performance of the students. However, this improvement must be directly linkable to the effort of the teacher for it to count. For instance, performance improvement can be noticed from the results of the conducted tests and examinations. Other areas to seek such improvement can be in the produced reports from researches by the students or the skills displayed in certain area of knowledge. Nevertheless, this criterion alone cannot be effective in the determination of the teacher's performance because numerous other forces apart from school contributes to the performance of the students. It will therefore amount to gross misconduct to base all improvements noticed from the students solely on the effort of their teachers and schools.
- ii. Process criteria. This follows the maxim that "the means is as important as the end". Apart from the teaching output, the teaching process is equally important. The influence of the teaching process on the performance improvement on the students therefore deserves some attention. Like the earlier criterion, this cannot be equally adopted in isolation of the other criteria, as the disparity in the students' performance may not be solely attributable to the adopted process.
- iii. Presage criteria. Unlike the earlier criteria, this focused more on the innate abilities of the tutor. Examples of these innate features are manners, gestures, intellectual prowess etc. Classic studies related to tutor's assessment has majorly relied on this criterion. Instead of considering other arrays of influencers apart from the personal attributes of the teacher, they explained all improvement observed through this criterion alone aside few other studies that adopted a combination of the product, process and prestige criteria. All of the criteria are important in the effective

evaluation of a teacher especially when appreciating the positive additions in the performance of the students. Nevertheless, the restricted adoption of a singular criterion will record a number of defects. Recognising this, recent studies has placed their investigation on a more complex set of values that can guarantee more robust and reliable result rather than the one sided view observed in the classical literature available (Byrne, 1962).

2.2.9.2.2 Research Performance

Having noted that the work of an academic staff in a university system is polarized into teaching, research and community service. Another point of evaluation apart from teaching is research effort. In explaining the idea of research performance measurement as observed in extant literature, Brew (2001) submitted that numerous approach abounds with the most popular of them being the mere counting of the publication number. For instance, Jauch & Glueck (1975) identified ten measurement matrixes of; quality of journal index; peer review; citation; honours and awards; quantity of publications; quantity of dissertations; publications (manuscripts); invitations for paper presentation; award of research grants and funds, and membership of professional associations. Creswell (1985) in a restricted dimension single out; the number of publication; number of citation, and peer-review ratings as the criteria for research evaluation in the sciences and humanities.

In a more technical perspective, Harris (1990) submitted four different measurement index for research evaluation as follow; impact factor, quality of outlet, importance and the number of publication. While explaining the technicalities, he define impact factor as the extent of influence the study has in the realms of knowledge especially in a particular field. The number of scholars that referenced the work in subsequent studies usually facilitate the understanding of this. As for quality, he refers to the extent of depth the research covered

both in terms of data sourcing and analysis reliability. While importance covers the extent of contribution, the study added to the existing literature as adjudged by experts through a peer review exercise. Quantity, being the simplest criteria deals with the number of articles produced over a specified period. However, Harris submitted that a strong positive relationship exists between impact factor and research quality.

While contributing to the debate, Moses (1992), Bazeley (2010) and Hesli & Lee (2011) identified research productivity and research activities index as the most viable means of research performance evaluation. In the first category of research productivity, he identified the quantity of single authored and multiple authored books published; research manuscripts in reputable journal outlets; edited books and chapters in recognized books. For the second of research activities, he pointed out; external and internal grants and funding won, postgraduate students successfully supervised, interdisciplinary collaborations facilitated, serving as a member of the board of editors in reputable journals, paper presentation at at least a research-based conference and maintaining connections with international colleagues in similar study areas.

In conclusion, evidence from extant literature indicated that the performance of an academic staff is measured by a number of criteria subject to the choice of the institution concerned as no uniformly agreed set of criteria existed. However, common to all the sampled submissions is the consideration of the publication number and this is often confused with quality (Wills, Ridley & Mitev, 2013). More particularly, Burke, Fender & Taylor (2007) rallied support for the publication quality rather than ratings that is being popularized by Buchheit, Collins & Collins (2001). To Chow & Harrison (1998), serious attention must be paid to the number of citations, while to Bazeley (2010), no two educational institutions may

adopt the same criteria, rather other ecological factors determines the style applicable to different settings and periods.

In an elaborate but digressive submission, Tekneci (2014) concluded that varied indicators of research output measurement existed but the style adopted depends on certain peculiar set of values. He further submitted that apart from the publication numbers, peer review and bibliometric analyses are equally popular criteria than others like; number of students graduated, grants and funding won etc.

2.3 Theoretical Review

2.3.1 Edward Deming Theory of Quality

Edward Deming was one of the prominent advocate for quality immediately after the WWII when he recommended the system approach for the Japanese companies in an approach that later became known as the PDSA. This was acronym for Plan, Do, Study and Act. As a statistician and a professor in the New York University in 1940, he therefore assumed the identity of the father of quality control. He propounded the following fourteen principles as a prerequisite for performance enhancement at the organizational level. These principles can also be adopted in the university education with slight modification. The principles are:

- a. Permanence purpose: university should create a stable mission statement that will focus on skill development, motivation and innovation promotion among students with a view to getting them ready for the challenges of national development. To develop a stable mission statement requires understanding of why an organisation is in existence. In line with the university mission, the faculty can develop their own missions and the department in that hierarchical order.

- b. Cease independence on mass inspection. Organisations should understand the extent to which inspection can help curtail products of substandard quality. As inspection assists in preventing substandard product from getting to the market, a number of expenses is still incurred in this process. On the administrative side of the university, depending on mass production is like having too many checks and balances, the management should look inward and check if any process requires a total change or improvement in a bid to cut down the rate of product inspection.
- c. Cost consideration should not be the only criteria for awarding contracts. This usually happens when projects are announced for bidding, the focus is often on the proposal but if quality specified at the point of awarding the contract is not put into implementation, the cost of correction if added to the initial award project cost will amount to double costing.
- d. Break down barriers. This can only be achieved when cooperation rather than competition are encouraged. Staff should be encouraged to form a team in breaking barriers. For instance during the screening of new student, every faculty should have representative on the boards. Ensuring that many people participate in the decision making is an indication that better decisions will be made.
- e. Do away with all indications of infatuations.
- f. Remove barriers to pride workmanship: hindrances that made create a gap among colleges, faculties and departments must be presented. There is every tendency that if a secretary for instance is granted the chance to be part of decision making having to do with her job will make her to put her best effort in the job.
- g. Organisation-wide involvement: This is the process whereby all members of the organisation are covered in the skill enhancement programmes so organized by the institution.

- h. Adoption of a new philosophy. It is expected of every organization to have a philosophy, mission and vision. The mission should also reflect the priorities of the organization and also what every succeeding chief executive should adopt.
- i. Effective leadership strategy: Deming (1986) asserted the essence of a strategic leadership is to ensure that coherence and orderliness is established in the organisation thereby bringing uniting the employees towards the goals of perfection. To attain quality in the university, leadership must be focused with integrity and every member from the vice chancellor to the lowest man on the ladder must be working towards the same objective. The leadership must possess the ability to carry every staff along in decision making.
- j. Institute training on the job: It is generally believed that you can only give what you have. For lecturers to be effective in discharging their duties and responsibilities effectively, the issue of training and re-training should be on the priority list of every university.
- k. Promoting confidence in the organizational workforce.
- l. Engage all capable hands in the organisation
- m. Ensure employees' career advancement and;
- n. Adopt alternative appraisal mechanism like trust worthiness, passionate etc.

Deming teachings and philosophy is a radical move away from the existing traditional ideas which pinches workers for reduced productivity rather focus on other organizational issue beyond the employees. This argument was better captured in the numeric example presented by Deming when he noted that 1/6 of organizational or production issues arise from the employees while the 5/6 left emanated from the organizational processes and procedures.

To Deming therefore, the onus lies on the organizational management to ascertain issues responsible for reduced production capacity either internally or externally generated with a view to recommending appropriate solution. This in addition to saving cost will assist the employees to reach their aspired career progression.

2.3.2 Joseph Juran Trilogy Theory

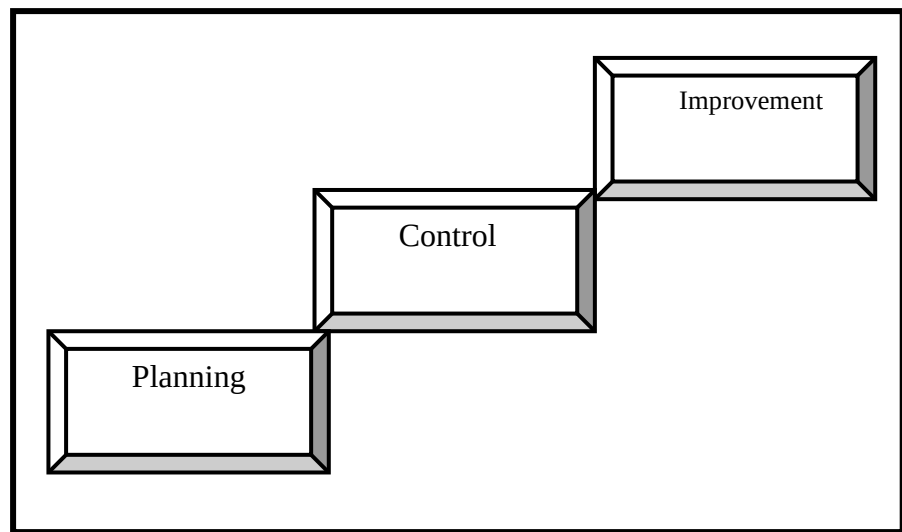
Juran was another remarkable advocate of quality management after Deming. While working with Western Electric, Juran became popular after the publication of his book in 1951. The work titled 'Quality Control Handbook' established his philosophy which was related to that of Deming although with a few polarities. While Deming upheld the importance of transforming the organisation, Juran proposes a less radical approach of institutionalizing quality promotion strategies in the organisation.

One of the major contributions of Juran's to quality management is his focus on what quality should be and the cost. He examined the concept of quality beyond merely ensuring adaptation to specification, rather he portrayed at making sure that the product fits the aspiration of the consumers. Emanating further from his effort was the quality trilogy of planning, improvement and control.

In his theory, he suggested the following approach

- i. Creating the necessary avenue for improvement
- ii. Programme the improvement strategies in addition to the needed skill enhancement
- iii. Create a realizable pattern for actualization.
- iv. Actualise the training
- v. Execute the problem solving strategy and grant periodic reports
- vi. Identify and reward excellence in performance in addition to ensuring proper documentation.
- vii. Keep the improvement stable and replicatory.

Figure 2:11 Juran Trilogy of Quality



Source: Suganthi,L& Samuel, A

According to figure 2.11 above, Juran classified quality into: Quality planning, improvement and control.

Planning for Quality

- Identify the consumers
- Determine their needs
- Create products that address these needs
- Create organizational condition for the production of these products
- Concretise the production process

Quality Control

- Ascertain the product performance level
- Critically compare the expectation with the actual performance
- Create alignment to eliminate the gap noticed in the stage above

Quality Improvement

- Make available the needed facility for product improvement
- Ensuring specificity of areas that required upgrading
- Assign a dedicated team to handle improvement issues
- Empower the team to standard in view of their enormous responsibilities

2.3.3 Philip Crosby Prevention Process Theory

Philip Crosby theory is basically on prevention process. He centred his works on the strategy of Do it right at first with no error. He further highlighted the necessities of quality that were the prevention, quality vaccine and the Six C's.

Crosby just like the earlier contributors to the discussions on quality stressed the strategic role of the organizational management in quality improvement. This he suggested can be done by using statistical tools and quality monitoring. To eliminate quality costs and also prove that quality is free, Crosby advocated that organisation must implement a quality management system to its fullest.

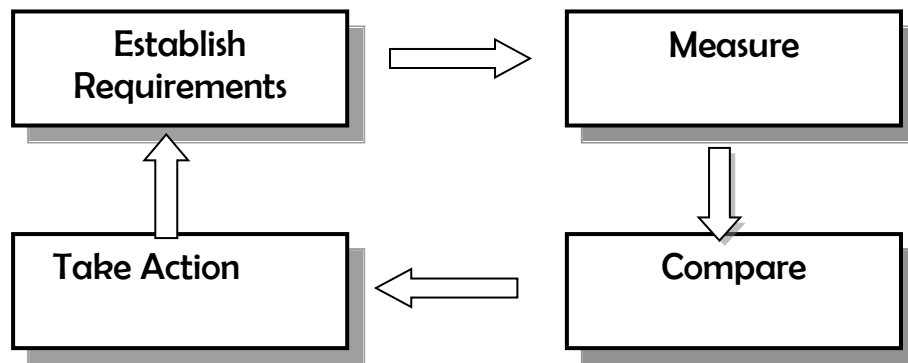
He suggested the following 14 steps to quality control.

- **Management commitment:** Which can be achieved through the following steps
 - A concerted policy on the need for product quality.
 - Priority should be placed on quality
 - All organizational executives must assume the image of the need for quality.
- **A Team to Improvement on the Quality:** This team is responsible for guiding the organisation in fashioning appropriate ways of ensuring product and service quality.
- **Quality Measurement:** This is the process of measuring the quality of the product.

- **Quality Evaluation Cost:** This covers amount wasted on sub-standard products produced.
- **Corrective Actions:** This is the process of identifying and eliminating problems forever.
- **Zero Defects Committee:** This committee is in charge of planning for longevity of the process involved in the management of quality.
- **Employee Education:** The organisation should endeavour to train and re-train those in charge of quality process.
- **Zero Defects Formula:** A day is set aside for management to declare its absolute commitment publicly toward quality process.
- **Goal Setting:** This should take place after measurement.
- **Error-cause removal:** This is the process of asking people to state their problems which they encounter in the course of discharging their duties.
- **Recognition:** Awards should be given to those that meet their targets.
- **Quality Councils:** Quality professionals are brought together to cross fertilise ideas.
- **Do it all over again:** After completing a tenure which in most cases between 12 – 18 calendar months, another new team of representative should be established.

Crosby noted that preventing non-conformance with quality specification is similar to the urgency placed in the use of vaccines to fight bacteria. He went further to formulate a vaccine called quality vaccine as an antidote for quality problems. In line with his recommendation, three actionable factors must be entrenched by the management to ensure maximal coordination of adherence to quality specification. Generally, Crosby approach to management focus more on preventive measures which were education, determination and implementation.

Figure 2:12 Prevention process of Crosby (1987)



Source: Suganthi, L. & Samuel, A.A. (2012)

His prevention process according to figure 2.12 above begins with the creation of the service or product and thereafter gather data on product and later compares the data with the actual requirements and lastly take action on the result. His major strength lies in the need to overhaul organizational culture by creating a new road map for fostering cooperation among the staff and organisation managers.

2.3.4 Kaizen Theory

Kaizen theory which was propounded by Masaaki Imai a Japanese organisational theorist and management consultant literally means an advancement towards perfection in Japanese language covers the concerted efforts dedicated to the sustained upgrading in the process of business management. According to the theory, all employees on the hierarchical ladder should be involved in improvement process and that will help in curtailing waste to the barest minimum.

The theory emphasises on the need for every organisation to invest more on human resources by giving them adequate and timely training. The theory proposed the following six activities called the six cycle of Kaizen theory:-

- i. Operation standardization
- ii. Effective measurement
- iii. Benchmarking the requirement to ascertain the reality gap
- iv. Boosting productivity through innovation
- v. Formalizing the innovation process
- vi. Repeat process cycle

Kaizen stressed the needs to encourage teamwork within the organisation, improve workers morale, welcome suggestions for improvement and instil personal discipline among workers.

Philip Crosby prevention process theory was adopted in the study because the theory emphasis more on process rather than output by focusing more on preventive measures rather than inspection and correction of errors. In addition to that, Crosby theory also addresses the issue of cost as it does relate to quality.

2.4 Empirical Review

Gandhi (2015) while investigating the effect of TQM on Higher Institutions in India noted that all public establishments in the education sector like the universities by the central and states must implement the tenets of TQM to gear up the quality of education in the country. With primary data, involving 240 questionnaires that were distributed to the respondents, the study found that achieving excellence in the higher institutions would not come on the platter of gold. Rather, deliberate policies relating to TQM must be formulated and diligently implemented.

Similarly, in the study by Barbara, Silvestri, Ruggieri & Gatti (2017) that explored the link between TQM and emerging research areas in Italy. Using qualitative method to gather data which involve reviewing and analysing a total of 103 articles. The study concluded that three categories of paper were relevant to the study and they were papers on identification,

implementation and performance. The study maintained that only few studies existed on the relationship between marketing and performance.

The researcher recommends that an open-minded manager is required to design the mechanisms that will foster the proper implementation of TQM policies. After this, a comprehensive measurement gauge must be put in place to ascertain the level of performance recorded.

Faizan, Ali, Zhou, Hussain, Nair, & Ragavan (2016) conducted a research on quality assurance in the Malaysian Higher Educational Institutions. Using a survey design that accommodated the use of a self-administered questionnaires on the students of universities with campus in Kuala Lumpur. With this parameter, only three universities with a concentration of international students qualified for the study. A sample of 400 respondents were adopted from the use of convenience sampling technique. Among the findings of the study was the undisputed fact that the condition and quality of education in the selected schools were satisfactory to the students. In addition, the supporting services from the non-academic staff were also commended as being up to the expected standard. In recommendation, the study submitted that cultural inclination and perception of quality be encouraged among the staff and students of the Malaysian Higher Institutions.

While investigating the link between knowledge management and TQM practices in Jordan universities, Obeidat, Hashem, Alansari, Tarhini, & Al-Salti, (2016), the research work makes use of qualitative method of data collection. The study found that knowledge acquisition, preservation, transfer and dissemination are all embodied in the concept of knowledge management. However, the study identifies sustained training and development, management commitment and teamwork as the prerequisites of an effective TQM.

With qualitative data sourced from experienced principal officers of selected universities with 15 years working records, Adetunji (2017) investigated the factors militating against the

delivery of quality educational service in public universities in Nigeria. With a purposive technique of sampling in use, the study revealed that the principal officer so sampled are doing their best in ensuring that quality is retained in the university system despite the difficult situation in the country.

Akhuemonkhan, Raim & Dada (2014) carried out an imperative study to offer a valid explanation of a stable approach to the assessment of TVET in Nigeria by looking at the effect of quality assurance on the technical vocational training in Nigeria. Using a sample size of 150 respondents, the study found that quality assurance has failed to record the expected effect on TVET in Nigeria. The implication of this finding was that policymakers must dedicate all effort on finance in a bid to overhaul national development through an improved technical education.

Similarly, Nnennaya (2014) in his paper on the management of quality service delivery in the Nigerian universities highlighted significantly on the roles of the NUC in ensuring the application of quality standards in the management of the Nigerian universities. His study concluded that though, the need for quality management in the Nigerian tertiary institutions cannot be over emphasized, yet the effect of policy inconsistency has curtailed the extent to which the dividends of quality management can be reaped. He thus suggested that a transformation approach that is both systematic and institutional be put in place to ensure effectiveness in quality management in the Nigerian universities.

Ogunnaike, Tairat, & Emmanuel (2014) examined the approach to customer's relationship management and how this affects students' satisfaction in product marketing in the Nigerian higher institutions. Using a multiple regression analysis, the research found that the proper management of students' wellbeing do prompt them to recommend their schools to their colleagues. It equally found that if the relationship between the university management and the parents is well managed to foster cooperation, there is a high tendency that the

university will be considered satisfactory to the student and it shall also be on their recommendation list to others. In view of this, the study recommended that a lasting and productive relationship be built among the university management, the students and their parents to facilitate students' satisfaction.

Syed (2013) conducted a study on the impact of TQM on the Pakistani public universities. In the study, the researcher seeks to ascertain the level of TQM implementation in the study universities with Cronbach's Alpha and Exploratory Factor Analysis (EFA) statistical tool to analyse data collected. The researcher concluded that though TQM is being implemented in the institutions under study but restively at a slower pace and that improvement can still be made in areas like sustained upgrading of quality values, staff trainings and development etc.

Aboki (2004) conducted a study in Uganda on the integration of TQM into the governance system of public universities in the country. With a cross sectional survey that sampled the academic, non-academic, management staff and students of the selected universities, the study found that of the universities in the country, majority of them bureaucratically structured and this static and rigid system if not fit for an academic institution that is expected to be fluid and dynamic. It thus recommended that in the management of the universities, the focus of the adopted management style should rather be on the people than on the administrative system. Other empirical studies are listed in the table below:

Author	Title of Publication	Variables	Data& Analysis	Results	Conclusion and Recommendations
Adetunji et al. (2017) Nigeria	Deregulation: The Effect of Market-led Approach to Nigerian Universities Management	Nigeria; Marketing; University; Deregulation		The study submitted that the focus of Nigerians is on quality education without much attention on how this is to be made possible.	Apart from the licensing of private universities, there is the need for studies on the approach to commercializing the Nigerian public universities.
Faizan Ali et al. (2016) Malaysia	Quality Assurance in Education. Effect of Higher Education Quality on the satisfaction, image and loyalty of the students.	Students' satisfaction, image and loyalty	Primary Data 400 questionnaires	It found that students have a reasonable level of satisfaction from the academic arrangement likewise on those not academic too.	The need for multiple access for international students as regards the staff of the Malaysian Universities.
Adetunji (2015) Nigeria	Quality issues: Beyond the Nigerian institution	quality; principal officers;		Apart from finance, other issues contributes to the effective delivery of quality services in the universities.	The need to investigate the likelihood of generalizing the supporting issues to quality educational service delivery in the universities.
Aduke, A. F. (2015) Nigeria	Time Management and Students Academic Performance in Higher Institutions, Nigeria: A Case Study of Ekiti State	Time management, Higher institutions, academic performance	Primary Data 200 Questionnaires SPSS	Procrastination, inability to plan properly and priority challenge are the issues militating against the effective performance of the students	Aside this issues, what are the other environmental issues that may impede students' effective performance.
Adeolu (2011) Nigeria	Teachers' Professional Development and Quality Assurance In Nigerian Secondary Schools	Teachers' professional development, Instructional tasks, Teachers' qualifications, Teaching experience	Primary Data 600 Questionnaires SPSS Correlation and Regression	There is a relationship existing between teachers' qualifications and instructional performance; Teachers' teaching experience and instructional task performance	Effort should be made to enhance the performance of the teachers..
Barbara et al.	A systematic	Total quality		There is a	A more elaborate

(2017) Italy	literature review on total quality management critical success factors and the identification of new avenues of research	management, Stakeholder and Customer's involvement		recent surge in customer's focus on TQM. Equally, its implementation should be based on a general model.	approach to quality management should be explored by organizational managers.
Benavides-Velasco, C. A., Quintana-García, C., & Marchante-Lara, M. (2014) Spain	Total quality management, corporate social responsibility and performance in the hotel industry Carlos	TQM, CSR, Responsiveness Hospitality industry Stakeholders	Stakeholder theory, Primary Data 141 questionnaires	TQM has a significant influence on hotel performance.	Corporate Social Responsibility should be tailored towards TQM implementation.
Gandhi, M. M (2015) Indian	TOTAL QUALITY MANAGEMENT IN HIGHER EDUCATION IN INDIA			Despite the efforts of the Central Government so far, the expected result are still elusive.	The study explored the relevance of TQM and it can help institutionalize quality in the educational system of India.
Ernest Emekalzogo Ike-ElechiOgba (2015) Nigeria	Service quality, customer satisfaction and loyalty in automobile repair services sector	Service quality, satisfaction, and customer loyalty	Primary Data 384 questionnaires	Service quality determines customer's loyalty.	
Akhuemonkhan, I., Raim, R., & Dada, J. O (2014) Nigeria	Impact of Quality Assurance on Technical Vocational Education and Training in Nigeria	Quality Assurance, Training and Development, Education	Human capital theory, critical conflict theory Primary Data 150 questionnaires	It found that TVET has not significantly affect quality assurance positively.	It is only when public policies are channeled to address the inadequacy of finance that TVET can record significantly influence on quality assurance.
Gberevbie, D. E., Osibanjo, A. O., Adeniji, A. A., & Oludayo, O. O. (2014) Nigeria	An Empirical Study of Gender Discrimination and Employee Performance among Academic Staff of Government Universities in Lagos State, Nigeria	Academic staff, Employee performance, Gender discrimination ,	Primary Data 149 questionnaires	The study found that capitalizing on gender to apportion role impedes women's performance in the educational sector.	It thus concluded that instead of using gender as a consideration for appointment, competency and merit should guide recruitment and role apportionment in the Nigerian Higher Institutions.
Sadikoglu, E., & Olcay, H (2014) Turkey	The Effects of Total Quality Management Practices on	Leadership, Training, Customer focus, Firm	Primary Data 242 questionnaires	The absence of employees involvement and	Firms should improve on the engagement of the employees in the

	Performance and the Reasons of and the Barriers to TQM Practices in Turkey	performance, knowledge, TQM practice		commitment was found by the study as the challenges confronting the effective implementation of TQM in Turkey.	implementation of TQM.
Obeidat, B. Y., Hashem, L., Alansari, I., Tarhini, A., & Al-Salti, Z (2016) Jordan	The Effect of Knowledge Management Uses on Total Quality Management Practices: A Theoretical Perspective	knowledge management, total quality management,	Social Capital Theory	It established that knowledge management that covers its acquisition, preservation, application and dissemination could only be effectively managed through regular training, teamwork and top management support. When all this is in place, then TQM is possible.	It strategically positioned knowledge management at the core of an effective TQM implementation.
Odediran, S. J., Gbadegesin, J. T., & Babalola, M. O. (2015) Nigeria	Facilities management practices in the Nigerian public universities	Facilities management, Facilities performance, FM practices,	Primary Data 130 questionnaires SPSS	Adequate facility management technique is absent in the maintenance of university infrastructure in Nigeria.	It submitted that unless adequate attention is paid to facility management in the Nigerian universities, the expected service quality will remain elusive.
Ogunnaike, O. O., Tairat, B. T., & Emmanuel, J. O. (2014) Nigeria	Customer Relationship Management Approach and Student Satisfaction in Higher Education Marketing	Relationship Management, satisfaction of the students and management-parent relationship.	Relationship management theory, Stakeholder Theory, Primary Data 112 questionnaires SPSS	Students' lifecycle predicts the likelihood of university recommendation to others by the students.	The willingness to recommends depends the level of satisfaction enjoyed by the students.
Ebikabowei E. Baro, Ejiobi G. Bosah, Ifeyinwa C. Obi, (2017) Nigeria	Research Funding Opportunities and Challenges: A Survey of Academic Staff Members in Nigerian Tertiary Institutions.	Publicity,	Herzberg's theory of motivation, Economic Exchange Theory, Primary Data 264 questionnaires	The politics involved in accessing research fund is derogatory to the Nigerian educational system.	Engaged scholarship should be promoted in the Nigerian higher institutions.
Oluwaseyi, M.	THE IMPACT		Secondary	Foreign Direct	Public policy

H. (2016) Nigeria	OF FOREIGN CAPITAL INFLOWS ON ECONOMIC GROWTH IN SELECTED WEST AFRICAN COUNTRIES		Data Panel Data Stata	Investment remains the only negative variable in the proper flow of foreign capital in the selected WA countries.	framework should target the encouragement of foreign investment by creating the needed enabling environment that allow business to thrive.
Papantymou, A., & Darra, M. (2017) Greece	Quality Management in Higher Education: Review and Perspectives	benefits, Critical Success Factors (CSFs)	Primary Data 130 questionnaires	The type and age of university, transformational leadership facilitates other critical factors that contributed to CSF in the management of the higher educational institutions in Greece.	The Critical Success Factors that can guarantee effective TQM are effective leadership, enthusiasm, effective conflict management and adequate resources allocation.
Sabet, H. S., Saleki, Z. S., Roumi, B., & Dezfoulian, A. (2012) Malaysia	A Study on Total Quality Management in Higher Education Industry in Malaysia	TQM, Higher Education, Finance and Training	Primary Data 112 questionnaires	It found that Teamwork and employee commitment plays an invaluable role in the effective TQM implementation in Malaysian universities.	University management in Malaysia should place importance on staff training as this is required for a successful TQM implementation.
Islam, M. A., & Alam, M. S (2017) Dhaka	Webometric study of private universities in Bangladesh		Primary Data 44 questionnaires	Unresponsive links characterized the web page of many privately run universities in Bangladesh. This has curtailed the ratings of these universities in their Overall WIF.	The expected web impact of the study universities is not met and this accounts for their reduced patronage.
Suleman, Q., & Gul, R. (2015) Pakistan	Challenges to Successful Total Quality Management Implementation in Public Secondary Schools: A Case Study of Kohat District, Pakistan	Challenges, Successful, TQM Implementation	Primary Data 100 questionnaires	Prominent among the challenges confronting public secondary schools in Pakistan were; ineffective leadership, insubordination and host of other issues. In	In addition to organizing periodical trainings for Heads of the study schools, adequate funding and infrastructure should be provided.

				a nutshell, these challenges has significantly impedes the successful implementation of TQM.	
Psomas, E. L., &Jaca, C. (2016) Spain	The impact of total quality management on service company performance: evidence from Spain	TQM, Spain, Company performance	Primary Data 151 questionnaires	An effective TQM implementation must factor in issues like employees training, commitment, customer's focus.	An effective TQM implementation must factor in issues like employees training, commitment, customer's focus.
OsayaweEhigie , B., &McAndrew, E. B. (2005) Nigeria	Innovation, diffusion and adoption of total quality management (TQM)	Innovation, Total quality management, Organizational change,	Secondary Data Panel Data Stata	There is a growing resentment for TQM in recent literature. However, the problem lies in the categories of literature consulted as many other scholars appreciably experiments with TQM.	There is a growing resentment for TQM in recent literature. However, the problem lies in the categories of literature consulted as many other scholars appreciably experiments with TQM.
Nadiri, H., Kandampully, J., &Hussain, K (2009) USA	Students' perceptions of service quality in higher education	perceived service quality; student satisfaction;	Primary Data 151 questionnaires	In view of the intangible nature of service delivery, the customer's perception is highly problematic to measure in that regard especially as it has to do with educational services.	In view of the intangible nature of service delivery, the customer's perception is highly problematic to measure in that regard especially as it has to do with educational services.
Booth, P., Luckett, P., &Mladenovic, R (2018) Australia	The quality of learning in accounting education: the impact of approaches to learning on academic performance	Quality, Accounting Education, and Learning.		The approaches adopted in learning accounting related courses is not static and must depend on the category of students involved.	The approaches adopted in learning accounting related courses is not static and must depend on the category of students involved.

2.5 Research Gaps in the Literature Reviewed

A critical review of past related literatures revealed that several gaps existed on the impact of Total Quality Management on academic staff performance in Nigerian Universities. Though, many studies and researches have been done on the impact of TQM on organization's performance but as it can be observed most of these studies are in either manufacturing, health and banking sectors while only very few addressed impact of TQM on University education and besides, a reasonable number of these studies were done outside Nigeria. The present study therefore, came into existence to bridge this gap by conducting the research on the impact of TQM practices on university education in the Nigerian context.

Another major gap that was bridged in the study is that most of the available studies reviewed focused mainly on the application of TQM as a philosophy that can be used to improve quality performance of an organization as a whole regardless of the performance of the processes that bring about the overall success of the organization. This study therefore, bridged this gap by considering the impact of the application of TQM on the performance of academic staff in the university environment in order to determine if TQM practices also contribute to the performance of processes that help achieve organizational goals.

Another gap that exists in the literature relates to the consideration of TQM components employed. Several components of TQM practices have been used by previous studies. However, little attention has been given to the use of innovative practices as an important TQM tool which can also contribute to organizational performance. This present study bridged this gap by including innovative practices as a component of TQM practices.

Another gap that exists in the literature relates to the extraction of the components of specific TQM practices from the general pool of items. Most previous studies have employed simple averages to generate these components. However, for more scientific extraction, this

study employed the principal components analysis to generate the specific components which later served as variables from the general pool of items.

CHAPTER THREE

METHODOLOGY

3.1 Preamble

This chapter described the various procedures and techniques used to gather and analyse the study's data. These comprised the research design, research population, sample size and sample techniques, research instrument, validity and reliability of research instrument used and finally procedures for data collection and method of data analysis were equally discussed.

3.2 Research Design

A research design is viewed as the strategic approach adopted for the collection of all relevant information needed by the researcher. The gathered information must not only be valid but also reliable. However, this study adopted a cross-sectional survey design method. This was justified on the ground that it allowed the researcher to obtain information directly from the respondents in measuring the relationship between the two constructs in the study. In addition to that, it's in line with Osuala (2005), who submitted that survey method do more than merely to uncover data but rather it interpret, synthesise and also integrate all data obtained.

3.3 Research Population

Data for this study was gathered from ten selected public and private Universities in North-Central, Nigeria in 2018. The list of these universities were provided in Table 3.1 alongside their state and population of academic staff.

The choice of both public and private universities was justified on the ground that capturing these universities along ownership line made its analysis universal and encompassing than selecting a category of universities, which might give a unified but provide less general

conclusion. Including these universities therefore, made the conclusion of this study to be general for all universities across ownership status.

Table 3.1 Population Distribution of Sampled Universities for staff

University	State	Total Population
University of Abuja	FCT	1,201
University of Ilorin	Kwara	1,255
University of Jos	Plateau	1,007
Federal university, Lokoja	Kogi	416
University of Agriculture, Makurdi	Benue	800
Federal University of Technology, Minna	Niger	1,070
Federal University Lafia	Nassarawa	429
Kwara State University, Malete	Kwara	310
Kogi State University, Anyigba	Kogi	230
Nassarawa State University, Keffi	Nassarawa	490
Benue State University	Benue	480
Al-Hikmah University	Kwara	192
Landmark University	Kwara	208
Nigerian-Turkish Nile University	FCT	230
Total		8,318

Source: Researcher's Field Survey Report. 2019.

The total number of students in the sampled universities is given as 200, 827 based on the figures obtained from each of the selected universities websites as at December, 2018.

3.4 Sampling Size and Technique

In this study, multi-stage sampling technique was adopted (which comprises of stratified, purposive, convenience, availability and simple random sampling) and the focus of the researcher is basically on both public and private Universities in North-Central, Zone of the Country. These Universities include University of Abuja,

University of Ilorin, University of Jos, Federal University, Lokoja, University of Agriculture, Makurdi, Federal University of Technology, Minna, Federal University, Lafia, Kwara State University, Malete. Kogi State University, Anyigba. Nassarawa State University, Keffi. Benue State University, Al-Hikmah University, Landmark University and Nigerian-Turkish Nile University.

In addition to that, it was convenient for the researcher to obtain information and in an attempt to reduce the sample error to the barest minimum, the researcher employed Krejcie and Morgan (1970) table. This was equally justified on the ground that the formula provided an elaborate sample chart that did not require sophisticated mathematical calculation to identify the sample suitable for a particular study population.

Thus:

$$s = \frac{X^2 NP(1-P)}{d^2 (N-1) + X^2 P(1-P)}$$

For this study; P represents the proportion of success for the population which is assumed to be 0.50 based on the principles of insufficient realism as it would provide the maximum sample size (Krejcie & Morgan, 1970). More so, X^2 represents the chi-square value at 95% confidence interval which is 3.841, N represents the population size this equaled 8,318 (staff) and 200,827 (students); and “ d ” represents the degree of accuracy which in this study is based on 5% level = 0.05. In view of this, the sample size was calculated in the following order.

For staff:

$$s = \frac{(3.841)(8,318)(0.50)(1-0.50)}{(0.05)^2(8318-1) + (3.841)(0.50)(1-0.50)} = 367.2$$

For students:

$$s = \frac{(3.841)(200,827)(0.50)(1-0.50)}{(0.05)^2 (200,827-1) + (3.841)(0.50)(1-0.50)} = 384.1$$

Although, the sample size selection decision was to select 367 academic staff and 384 students, the researcher administered 390 and 400 questionnaires for both staff and students respectively in order to account for likely unreturned and inappropriately filled questionnaires. Past researchers such as Sekaran and Bougie (2010); Sabet, Saleki, Roumi, and Dezfoulan,(2012); Papanthymou, and Darra, (2017); and Booth, Lockett, and Mladenovic,(2018) budgeted for unreturned and inappropriately filled questionnaire to avoid short fall in the numbers of sampled respondents.

This study adopts Kumar (1970)proportionate quota random sampling to ensure an equal distribution of the participants vis a vis their population for both staff and students in each state of North-Central, geopolitical zone in Nigeria.

Table 3.2 Population Distribution of Questionnaire for staff

University	Total Population	Elements in Stratum	Subjects in Sample
University of Abuja	1,201	14.43%	56
University of Ilorin	1,255	15.09%	59
University of Jos	1,007	12.11%	47
Federal University, Lokoja	416	5.00%	19
University of Agriculture Makurdi	800	9.62%	38
Federal University of	1,070	12.86%	50

Tech.,Minna			
Federal University, Lafia	429	5.16%	20
Kwara State University	310	3.73%	14
Kogi State University, Anyigba	230	2.8%	11
Nassarawa State University	490	5.9%	23
Benue State University	480	5.8%	23
Al-Hikmah University	192	2.30%	9
Landmark University	208	2.50%	10
Nigerian-Turkish Nile University	230	2.70%	11
Total	8,318	100%	390

Source: Researcher's Field Survey Report. 2019.

The proportional stratum method was also applied to the students' population in the sampled universities to ensure sample size equal representation in relation the population.

Availability sampling was used since not all lecturers will be on ground at the same time, hence only those that were around completes the questionnaire. However, to ensure in depth knowledge and accuracy in completing the questionnaire is obtained, the researcher made sure that all categories of academic staff were captured.

3.5 Methods of Data Collection

To elicit information from all the stakeholders in university education management, primary data collection method was employed. Questionnaires and interviews were employed where necessary to obtain relevant data for the analysis of this study.

3.6 Research Instrument

This research adopted a primary data obtained through the use of questionnaires that were administered on the target respondents who are academic staff and students of the selected Nigerian Universities. The questionnaire was structured to accommodate three sections. Section A focuses on the demographic characteristics of the respondents, Section B addresses the issue related to TQM practices in the University context and Section C addresses the issues related to academic staff performance.

3.7 Reliability and Validity of the instrument

Of the numerous method available for testing the reliability of a study instrument, this study adopted the test-re-test method. This was justified on the ground that similar method was adopted by related studies and it created the opportunity for a single population to be measured at a separate time in line with the submission of Asika (2006).

The instrument was administered to Federal University, Lokoja staff and the same instrument was administered on the same respondents after one month to test the consistency of the instrument and Cronbach alpha reliability co-efficient was measured, all the constructs was above 0.75 that indicated that the adopted research instrument was reliable. Validity on the other hand was defined in relation to the measuring instrument. Asika (2006) defined validity as the ability of the instrument to measure what it is supposed to measure. In the study, content validity was employed and this was justified on the ground that the method enables researchers to use questionnaire to ask questions that are implied by the research questions and hypotheses. The questionnaire was equally validated by the supervisor and

some experts in the study area. Their views, opinions and suggestions were taken into consideration in producing the final draft of questions for the study.

3.8 Measurement Scales

Since the study was about the impact of TQM on academic staff performance in North Central Nigerian Universities and the stakeholders' perceptions on the performance of academic staff, the use of scales becomes highly imperative. This prompted the choice of Likert scale of five points for the study in view of its simplicity to both the respondents and the researcher. The respondents were asked to fill in the second section of the questionnaire with "strongly agree, agree, undecided, disagree and strongly disagree". In the evaluations; points were allotted to the scale in the order of priority based on the tone of the questions which were; strongly agree to 5, agree to 4, undecided to 3, disagree to 2 and strongly disagree to 1.

3.9 Procedure of Data Collection

The study instrument was self-administered on the sampled respondents with the aid of three trained research assistants and two postgraduate students as an instructor on the field. Respondents were persuaded to respond to the questionnaire on the spot to avoid loss and misplacement. The grey area of the questionnaires were cleared by the research assistants and instructors and where necessary, by the researcher.

3.10 Methods of Data Analysis

The analytical procedures employed in the study were guided by the research objectives as enumerated in section 1.4. Therefore, the study used Statistical Packages for Social Science (SPSS) software to run the data collected from the field.

However, the descriptive statistics used included the frequency, percentages; cross tabulations while the inferential statistics included multiple factor analysis, correlation analysis, and regression analysis.

3.11 Model Specification

Multiple regression analyses was employed for the objectives of the study that has to do with investigating the influence of TQM on the performance of academic staff in the selected universities. As a multivariate technique, the adopted analysis method is commonly used in business related studies. It works by considering the hypotheses and conceptual model of the study (Sekaran & Bougie, 2010). In this study therefore, the multiple regression model was adapted from Zahari and Zakuan (2016) who examined the impact of TQM on employee performance in manufacturing industry. Their model are specified as follows:

$$EP_i = \alpha_0 + \alpha_1 TML_i + \alpha_2 CS_i + \alpha_3 ET_i + \alpha_4 IA_i + \alpha_5 EE_i + \alpha_6 HRD_i + \alpha_7 MPS_i + \varepsilon_i \quad (3.1)$$

Where:

EP = Employee Performance

TML = Top Management Leadership

CS = Customer Focus

ET = Education and Training

IA = Information Analysis

EE = Employee Empowerment

HRD = Human Resource and Development

MPS = Management Policies and Strategies

ε = Disturbance Term

In accordance with the research study being conducted to examine the impact of TQM practices on academic staff performance in the university education context, the model in equation (3.1) was modified to the following four models, which were specified in equations

3.2, 3.3, 3.4 and 3.5. The modifications were majorly in terms of the dependent variables. Employee performance was then seen as academic staff performance in terms of teaching, research and community service. Six measures of TQM practice were adopted in this context. These were student focus, continuous improvement, team work, leadership commitment, academic staff involvement and process focus. Each of these TQM practices were included separately to examine their individual impact as well as the impacts of the items.

For the model that dealt with the impact of student focus on academic staff teaching performance, equation (3.2) presented the multiple regression model in this regard.

$$SP_i = \beta_0 + \beta_1 CCS_i + \beta_2 SNE_i + \beta_3 MSS_i + \beta_4 ASN_i + \beta_5 FQT_i + \epsilon_i \quad (3.2)$$

Where:

SP = Staff Productivity

CCS = Close Contact with Students

SNE =identifying Student's Needs and Expectation

MSS =Measurement of Student Satisfaction

ASN =Academic Staff Awareness of Student Needs

FQT =Feedback on Quality of Teaching and Facilities

ϵ = Disturbance Term

β_0 = the Constant Term

$\beta_1 - \beta_5$ = the Slope Coefficients

A priori expectation

The priori expectation of the slope coefficients in equation (3.2) were summarized with the inequality signs as follows.

$$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$$

The inequalities indicated that each of the coefficients of the variables included in this model were expected to be greater than zero (i.e. have positive signs). This implies that increase in TQM practices of student focus are expected to yield positive impact on academic staff teaching performance in the selected universities.

For the model that dealt with the impact of team work on academic staff research performance, equation (3.3) presented the multiple regression model in this regard.

$$RO_i = \gamma_0 + \gamma_1 PE_i + \gamma_2 THH_i + \gamma_3 TI_i + \gamma_4 ESI_i + \mu_i \quad (3.3)$$

Where:

RO= Research Output

PE = Pleasant Environment exists in all working areas

THH = positive values such as Trust, Honesty, Hardworking

TI = Teamwork and Involvement are normal practices

ESI =Employee Satisfaction Initiatives

μ = Disturbance Term

γ_0 = the Constant Term

$\gamma_1 - \gamma_4$ = the Slope Coefficients

A priori expectation

The a priori expectation of the slope coefficients in equation (3.3) were summarized with the inequality signs as follows.

$$\gamma_1, \gamma_2, \gamma_3, \gamma_4, > 0$$

The inequalities indicated that each of the coefficients of the variables included in this model are expected to be greater than zero (i.e. have positive signs). This implied that increase in TQM practices of team work were expected to yield positive impact on academic staff research performance in the selected universities.

For the model that dealt with the impact of leadership commitment on academic staff community service performance, equation (3.4) presented the multiple regression model in this regard.

$$CP_i = \delta_0 + \delta_1 FC_i + \delta_2 EIS_i + \delta_3 CRRP_i + \delta_4 CKI_i + \delta_5 CEE_i + \pi_i \quad (3.4)$$

Where:

CP = Community Service Performance

FC = Full Commitment to TQM

EIS = Effective Implementation Strategies

CRRP = Commitment to Reward, Recognition and Promotion

CKI = Commitment to Key Process Improvement

CEE = Commitment to Empowering Environment

π = Disturbance Term

δ_0 = the Constant Term

$\delta_1 - \delta_5$ = the Slope Coefficients

A priori expectation

The a priori expectation of the slope coefficients in equation (3.4) are summarized with the inequality signs as follows.

$$\delta_1, \delta_2, \delta_3, \delta_4, \delta_5 > 0$$

The inequalities indicated that each of the coefficients of the variables included in this model are expected to be greater than zero (i.e. have positive signs). This implies that increase in TQM practices of leadership commitment are expected to yield positive impact on academic staff community service performance in the selected universities.

For the model that dealt with the impact of academic staff involvement and process focused on academic staff performance, equation (3.5) presented the multiple regression model in this regard.

$$SE_i = \vartheta_0 + \vartheta_1 CRT_i + \vartheta_2 PFO_i + \vartheta_3 OPT_i + \tau_i \quad (3.5)$$

Where:

SE = Staff Academic Efficiency

CRT = Creativity

PFO = Product Focus

OPT = Optimization

τ = Disturbance Term

ϑ_0 = the Constant Term

$\vartheta_1 - \vartheta_2$ = the Slope Coefficients

A priori expectation

The a priori expectation of the slope coefficients in equation (3.5) are summarized with the inequality signs as follows.

$$\vartheta_1, \vartheta_2 > 0$$

The inequalities indicate that each of the coefficients of the variables included in this model are expected to be greater than zero (i.e. have positive signs). This implies that increase in TQM practices of innovative practices are expected to yield positive impact on academic staff efficiency in the selected Universities.

3.12 Ethical Procedures

In line with the global best practices in research, this study values the privacy of the respondents and the data provided by them. In further pursuit of this standard, adequate information was provided on the study to show that it was not a mandatory programme for the respondents as suggested by (Sekaran, 2007). Rather it was subject to the individual willingness of the respondents to participate. All relevant information on the nature of the investigation, the duration of the study as well as the intended outcome of the study were made explicit. The instrument was equally structured in simple language that will not unnecessarily stress the respondents. Furthermore, no peculiar personal information of the respondents were demanded. This was done to avoid their identification and to protect their privacy.

Table 3.3 Relationship Matrix of Objectives, Research questions, Hypotheses and Analytical Procedures

S/NO	Research Questions	Research Objectives	Research Hypotheses	Analytical procedures
1.	What is the effect of student focus on academic staff productivity in North Central Nigerian Universities?	Examine the effect of student focus on academic staff productivity in North Central Nigerian Universities.	Student focus does not have significant impact on academic staff productivity in North Central Nigerian Universities.	Multiple Regression analysis
2.	What is the relationship between continuous improvement and quality of teaching of academic staff in North Central Nigerian Universities?	Determine the relationship between continuous improvement and quality of teaching of academic staff in North Central Nigerian Universities.	There is no significant relationship between continuous improvement and quality of teaching of academic staff in North Central Nigerian Universities.	Pearson Correlation analysis

3.	How has team work affected research output of academic staff in North Central Nigerian Universities?	Examine the impact of team work on academic staff research output in North Central Nigerian Universities.	Team work does not have significant impact on academic staff research output in North Central Nigerian Universities.	Multiple Regression analysis
4.	What is the impact of leadership commitment on community services of academic staff in North Central Nigerian Universities?	Evaluate the impact of leadership commitment on community services of academic staff in North Central Nigerian Universities.	There is no significant impact of leadership commitment on community services of academic staff in North Central Nigerian Universities.	Multiple Regression analysis
5.	To what extent does innovative practices affect academic staff efficiency in North Central Nigerian Universities?	Assess the impact of innovative practices on academic staff efficiency in North Central Nigerian Universities.	Innovative practices have no significant impact on academic staff efficiency in North Central Nigerian Universities.	Multiple Regression analysis

Source: Author's Matrix of the relationship between stated objectives and Analytical Procedures

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Preamble

This chapter presents the analysis of survey data obtained through primary source with the aid of a structured questionnaire. The chapter presents demographic distribution of variables with cross tabulations of demographic variables and the extent to which they agree that their institutions practice total quality management. It also presents factor analysis used for data reduction in order to reduce the numerous items of the questionnaire to a number of principal components, and these components are then used in the regression analysis and correlation analysis presented in the latter part of the chapter.

4.2 Response Rate of Distribution

In this study, 390 and 400 copies of questionnaire were distributed to both academic staff and students respectively in ten Universities in North- Central, Nigeria. 370 and 384 copies were returned for staff and students respectively, which represent 94.9% and 96% for staff and students response rate respectively. All the returned questionnaires for students were properly filled and useful for data analysis. However, out of these 370 questionnaires that were returned by staff, a total of 348 were usable for data analysis. The remaining 24 questionnaires were excluded due to large numbers of un-responded items and outliers in the questionnaire. This accounted for 89.2% valid response rate which is higher than 30% suggested by Sekaran (2003). Table 4.1 indicates the response rate of the respondents.

Table 4.1: Response Rate of Questionnaires				
Response	Staff		Students	
	F	(%)	F	(%)
No. of Questionnaires	390	100	400	100
Questionnaires returned	370	92	384	96
Questionnaires not returned	30	8	16	4
Questionnaires Valid	348	89	384	96
Questionnaires not Valid (Due to outliers, double ticking and incomplete)	12	3	0	0
Valid response rate	89%		96%	

4.3 Data Screening and Cleaning

According to Pallant (2010), data screening is the method of checking for errors in the data collected. The error expected to take various forms which may include missing data or data that is outside the normal range stated by the researcher (out of range data). Data cleaning is essential in conducting any multivariate analysis. It is because the quality and the meaningfulness outcome of the analysis depend on the data screening and editing. Hence, missing data and outliers were thoroughly checked and treated.

4.3.1 Missing Data

Missing data is recorded when relevant value needed for analysis is not found (Hair, Black, Babin & Anderson, 2010). The implication is that the result of such an analysis becomes lopsided and untrusted for generalisation. Due to the negative effect of missing data therefore, this study took precautionary step at the onset of the data collection and recording process. At first, a step by step monitoring of the collated data was observed while questionnaires observed with missing values quickly traced.

A pilot statistical analysis was conducted to find out whether there is missing data or otherwise. The analysis indicated that only twenty-four (24) missing value is recorded for staff and none for students. Hair *et al.* (2010) assert that any case with more than 50 percent missing value should be deleted as long as there is an adequate sample. Similarly, Tabachnick and Fidell (2007) and Babbie (2004) observe the method of treating missing data is to drop the case. Hence, in this study twenty four (24) and zero (0) missing data were recorded for both staff and students respectively and they were corrected.

4.3.2 Assessment of Outliers

Inconsistencies observed in the flow of response is described as an outlier (Barnett & Lewis, 1994). Verardi & Croux (2008) noted that failure to identify and eliminate outliers in a regression-based analysis can distort the regression coefficient significantly and thus led to wrong conclusions. To avoid this in this study, the recommendation of Tabachnick & Fidell (2007) of ± 3.29 ($p < .001$) as a cut-off value of standardization was adopted. Following the criterion for detecting outliers, five (5) cases were identified using standardized values as potential univariate outliers. Thereafter, multivariate outliers were also detected using Mahalanobis distance (D2). Tabachnick and Fidell (2007) defined Mahalanobis distance (D2) as the distance of a case from the centroid of the remaining cases where the centroid is the point created at the intersection of the means of all the variables. Based on 85 observed items of the study, the recommended threshold of chi-square is 93.17 ($p = 0.001$). Mahalanobis values that exceeded this threshold were deleted. Following this criterion, seven (7) multivariate outliers were detected and subsequently deleted from the dataset because they could affect the accuracy of the

data analysis technique. Thus, after removing twenty four (24) multivariate outliers, the final dataset in this study was 348(staff) and 384 (students) were finally used for analysis.

4.4 Demographic Profile of Respondents

The profile of the respondents was analyzed by the researcher using their demographic details in terms of gender, age, marital status, as well as length of service as academic staff. The detailed analyses are presented below.

4.4.1 Respondents Profile by Gender

Of the 348 valid responses analyzed in this research, 263 (75.5%) were males while the remaining 85 (24.5%) were females. While for students, 34.6% were males and the remaining 65.4% were females. This indicates that higher proportion of males staff are of the opinion that their institution practises TQM. These figures were achieved by adding the number of respondents who agreed and strongly agreed. The summary is presented in Table 4.2.

Table 4.2: Respondents by Gender		Staff		Students	
Items	Freq	(%)	Frequency	(%)	
Gender					
Male	263	75.5	133	34.6	
Female	85	24.5	251	65.4	

Source: Field Survey, 2019

4.4.2 Respondents Profile by Age

Deduced from the descriptive analysis, 72 (20.7%) respondents are below the age between 18 - 30years, 160 (46.0%) are between 31-45 years of age, 91 of the respondents representing 26.1% are in the age of brackets 46-55 years. And 25 of the respondent representing 7.2% are above 56 years of age(See Table 4.3.). Majority of the students respondents are below 18years of age as shown in the table 4.3The implication of this result is that majority of the sampled lecturers are still young and at their productive age. If TQM practice is implemented and encourage, there is high probability of a paradigm shift in a positive direction in the educational sector especially in the Nigerian Universities.

Table 4.3: Respondents by Profile of Age

Staff			Students		
Items	F	(%)	Items	F	(%)
18 - 30yrs	72	20.7	Below 18yrs	215	56.0
31 – 45yrs	160	46.0	18 – 22yrs	81	21.1
46 – 55yrs	91	26.1	23 – 27yrs	48	12.5
Above 56yrs	25	7.2	Above 28yrs	40	10.4

Source: Field Survey, 2019

4.4.3 Respondents Profile by Marital Status

Of the 348 valid respondents, the highest number of them 223 (64.1%) are married. 93 (26.7%) are single, while only 32 (9.2%) are other categories which are divorce and widows. This showed that all the respondents agreed that their institution practises TQM. See Table 4.4 for the summary of the students' status. Most of the respondents

were married and respected members of the society who are responsible and take reasonable decisions.

Table 4.4: Respondents by Marital Status

Items	Freq.	(%)
Single	93	26.7
Married	223	64.1
Others (Divorce and Widow)	32	9.2

Source: Field Survey, 2019

4.4.4 Respondents Profile by Length of Service

As depicted in the analysis, out of all the 348 respondents, 73 (21.0%) of the respondents have length of service between 1 - 5years, 100 (28.7%) have between 6 - 10 years of service, 86 of the respondents representing 24.7% have length of service between 11 - 15 years and 89 of the respondents representing 25.6% have above 15 years of length of service. The respondents are of agreed and strongly agreed that their institution practises TQM. See Table 4.5. Majority of the respondents have spent reasonable number of years in their various institutions which implies they are well knowledgeable about the policies and procedures of their universities and can provide answers to the conceptual issues of the study.

Table 4.5: Respondents by Length of Service

Items	Freq.	Percentage (%)
1 - 5yrs	73	21.0
6 – 10yrs	100	28.7
11 – 15yrs	86	24.7
15yrs and above	89	25.6

Source: Field Survey, 2019

4.5 Descriptive Statistics for the Variables

Over time, mean has remained the most used measurement of central tendency that indicates the average value in among a set of data (Sekaran & Bougie, 2010). Equally, the standard deviation is adopted to determine the dispersion, allocation or spread of a set of data. In essence, it aimed at providing an index of variability in a set of data. Both mean and standard deviation are key elements for the measurement of interval and ratio scales. This study adopted a five-point Likert scale, and Nik, Jantan and Taib (2010) interpretation of the level of score is adapted. Derivable from their recommendation was that a score below 2.33 indicated a low level, 2.33-3.67 represented a moderate level, while 3.67 and more indicated a high level.

The descriptive statistics table below depicts the mean and standard deviation of the variables adopted in this research. Continuous improvement has the highest mean ($M = 4.507$, $SD = 0.178$) while overall academic performance has the lowest mean ($M = 4.132$, $SD = 0.408$). In the end therefore, the mean of the adopted variable is in the range of agreed and strongly agreed that their institution practises TQM.

Table 4.6: Descriptive Statistics

Variables	Min	Max	Mean	SD
Leadership Commitment	1	5	4.442	.175
Student Focus	1	5	4.432	.189
Continuous Improvement	1	5	4.507	.178
Team Work	1	5	4.449	.244
Academic Staff Involvement	1	5	4.468	.163
Process Focus	1	5	4.470	.173
Teaching Performance	1	5	4.468	.163
Research Performance	1	5	4.470	.140
Community Service Performance	1	5	4.502	.132
Overall Academic Performance	1	5	4.132	.408

Source: Field Survey, 2019

4.6 Principal Components Factor Analysis

Table 4.7: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.655
Bartlett's Test of Sphericity	Approx. Chi-Square	6450.44
	Df	9
	Sig.	2016 .000

Source: Field Survey, 2019

The Kaiser-Meyer-Olkin's (KMO) measures the adequacy of the sample adopted in the study while the Bartlett's test of sphericity is jointly done with the principal component factor analysis. The essence of these tests were to ensure that the data being observed were adequate and appropriate for factor analysis. The KMO value indicated 0.655 that more than the benchmark 0.5, indicating that the study data

is adequate for the intended factor analysis. Similarly, the Bartlett's test of sphericity indicated a high chi-square value of 6540.449 while its probability value of 0.000 showed the extent of its significance, showing an indication of the rejection of null hypothesis and that the correlation matrix for the set of variables is an identity matrix.

Table 4.8: Communalities of the Variables

Items	Initial	Extraction
Leadership/Management Commitment		
LMC1	The management of my institution demonstrates full commitment towards TQM practices.	.621
LMC 2	Management work together as a team to create the implementation strategies effectively.	.580
LMC 3	Management reinforce TQM through the rewards, recognitions and promotions effectively.	.732
LMC 4	Management create an empowering environment effectively.	.727
LMC 5	Management takes the ownership for key process improvements.	.648
LMC 6	My institution fulfils its social responsibilities (such as environment friendly operation, charity, etc).	.658
Student Focus		
SF1	There exist a close contact among academic staff and students.	.774
SF2	There is room for identifying student's needs and expectation.	.708
SF3	There are ways and method of measurement of student satisfaction.	.755
SF4	There is high level of awareness of student needs among academic staff.	.754

SF5	There is feedback on quality of teaching and facilities from students.	.740
Team Work		
TM1	A pleasant environment exists in all working areas.	.756
TM2	Positive values such as trust, honesty, hardworking, are fostered by management.	.615
TM3	Teamwork and involvement are normal practices in this institution.	.756
TM4	This institution adopts 'Employee satisfaction' initiatives.	.691
Continuous Improvement		
CI1	There is a quality improvement coordinating body (e.g. quality steering committee).	.648
CI2	Improvement teams are active in all departments.	.755
CI3	Quality improvement tools and techniques are widely used.	.656
CI4	My institution practices continuous improvement of all its products and processes.	.688
Innovative Practices		
IP1	There has been increase in the amount of spending by this institution on development of research-aiding equipment.	.719
IP2	Extensive effort has been giving to increasing the availability of internet facilities.	.629
IP3	This institution has recently spent enormously in developing time-efficient ways of getting things done.	.696
IP4	A large amount of the equipment is currently under statistical process control.	.738
IP5	The school management has placed much emphasis on state-of-the-art equipment in order to improve academic performance.	.635
IP6	Physical structures such as research lab and researchers' lodge been ut in place in this institution.	.672

IP7	In order to improve staff efficiency, better internet facilities have been subscribed to in this institution.	.723
IP8	The number of innovation projects being started in the institution has surged recently.	.628
IP9	new employees have recently been employed in R&D.	.708
IP10	There are a number of new ideas in the pipeline.	.736
IP11	Staff are encouraged to further their education.	.724
Academic Staff Performance		
ASP1	To what extent do you think academic staff copes with the teaching loads of the university?	.660
ASP2	To what extent do you think academic staff copes with student supervision and consultations?	.743
ASP3	To what extent do you perceive students' understanding of the teaching styles of academic staff of this school?	.694
ASP4	To what extent does academic staff get involved in teaching co-curriculum?	.636
ASP5	To what extent do you think academic staff are consistent with handling of academic research projects?	.670
ASP6	To what extent is the involvement of academic staff in research works being conducted by peers in the university?	.666
ASP7	To what extent is academic staff consistency in the production of research works?	.652
ASP8	To what extent does academic staff encounter research grants and funds?	.631
ASP10	To what extent does academic staff participate in the activities of professional bodies related to your field?	.729
ASP11	To what extent does academic staff participate in the review of research works for institutions and organizations?	.694
ASP12	To what extent is academic staff's involvement as internal or external examiner in the university and outside?	.648

ASP13	To what extent is academic staff's involvement in committees on societal problems	.598
ASP14	To what extent is academic staff's involvement in community development services and other voluntary activities?	.653
Perception on Barriers to TQM		
PBT1	Lack of understanding.	.471
PBT2	Lack of preparation (No budget, no sponsor).	.723
PBT3	Resistance to change (Too busy)	.630
PBT4	Lack of vision.	.476
PBT5	Lack of top management commitment.	.738
PBT6	Lack of customer focus.	.483
PBT7	Lack of resources.	.461
PBT8	Lack of systems and structures for TQM activities.	.677
PBT9	Availability to training.	.457
PBT10	Training with no purpose.	.417
PBT11	Costly consultancies, training programs.	.691
PBT12	Lack of rewards and recognition.	.664
PBT13	Lack of effective measurement criteria.	.614
PBT14	Lack of evaluation procedures and benchmark indices.	.436

Extraction Method: Principal Component Analysis.

Source: Field Survey, 2019

The communality of the principal-component factor analysis' result presented above showed the values for each item used for TQM and academic staff performance in North-Central Nigerian Universities. Communalities measure the extent of the common variance of the variable associated with the factors. This is to ascertain the percentage of variance in a given variable explained by all the factors jointly. The greater the communalities, the higher the relevance of the item in the factor model and vice versa.

The table 4.8 above shows that each of the communalities is above 0.5 except the communalities of some items under barriers to TQM practices which were removed from the analysis. This shows that all items used to generate the components for Total Quality Management (TQM) and academic staff performance in Nigerian universities are accurate.

Table 4.9: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.208	18.054	18.054	9.208	18.054	18.054	5.783	11.339	11.339
2	5.994	11.753	29.807	5.994	11.753	29.807	4.568	8.958	20.297
3	4.042	7.926	37.732	4.042	7.926	37.732	4.380	8.588	28.885
4	2.595	5.087	42.820	2.595	5.087	42.820	3.170	6.215	35.100
5	2.160	4.236	47.056	2.160	4.236	47.056	3.142	6.160	41.260
6	1.699	3.331	50.387	1.699	3.331	50.387	2.426	4.758	46.018
7	1.604	3.145	53.531	1.604	3.145	53.531	2.352	4.613	50.631
8	1.494	2.929	56.460	1.494	2.929	56.460	2.020	3.961	54.592
9	1.405	2.754	59.214	1.405	2.754	59.214	2.014	3.949	58.541

10	1.398	2.741	61.955	1.39 8	2.741	61.955	1.741	3.414	61.955
11	1.161	2.276	64.231						
12	1.126	2.207	66.439						
13	1.113	2.183	68.622						
14	1.014	1.989	70.611						
15	.944	1.850	72.461						
16	.841	1.650	74.111						
17	.802	1.572	75.683						
18	.759	1.487	77.170						
19	.734	1.440	78.610						
20	.722	1.417	80.027						
21	.676	1.325	81.351						
22	.641	1.257	82.608						
23	.602	1.180	83.788						
24	.571	1.120	84.909						
25	.552	1.082	85.991						
26	.505	.991	86.982						
27	.501	.982	87.964						
28	.469	.921	88.885						
29	.434	.851	89.736						
30	.419	.821	90.557						
31	.414	.811	91.368						
32	.393	.771	92.139						
33	.375	.734	92.873						
34	.355	.697	93.570						
35	.318	.623	94.193						
36	.307	.602	94.795						
37	.287	.563	95.358						
38	.282	.552	95.910						
39	.268	.525	96.435						
40	.228	.446	96.882						
41	.210	.412	97.294						
42	.198	.389	97.683						
43	.179	.352	98.035						
44	.175	.343	98.378						

45	.160	.313	98.691						
46	.156	.306	98.996						
47	.144	.282	99.278						
48	.137	.269	99.547						
49	.112	.219	99.766						
50	.075	.147	99.913						
51	.044	.087	100.000						

Extraction Method: Principal Component Analysis.

Source: Field Survey, 2019

The factor analysis conducted for Total Quality Management (TQM) and academic staff performance in Nigerian Universities was set to retain ten components because there are ten constructs in the instrument used to collect the data. The result of total variance explained shows that the components retained altogether accounts for about 61.9% of total variance in Total Quality Management (TQM) and academic staff performance in Nigerian Universities. The rotated sums of squared loadings shows that each of these components from 1 to 51 accounts for total variance in Total Quality Management (TQM) and academic staff performance respectively.

Table 4.10: Rotated Component Matrix^a

	Component									
	1	2	3	4	5	6	7	8	9	10
1					.310	.656				
2						.699				
3					.654					
4			.632							
5			.737							
6			.521							
7			.453		.546					
8					.710					
9					.506					
10			.636							
11	-.539				.545					

12					.398				.488	
13					.457					
14			.667							
15			.677							
16			.536	.302						.347
17	-.324			.381	.311					.545
18	-.377							.406		
19			.382	.581						.682
20		.541								.637
21						.603				
22	-.489			.438						
23				.757						
24				.579						
25				.644						
26								.683		
27								.707		
28	.326							.380		
29							.329			
30	.651									
31										
32										
33	.766									
34							.768			
35							.724			
36	.729									
37	.780									
38	.378						.417			
39	.621									
40	-.621	.380					.302			
41	-.658	.321		-.331						
42								-.351		
43		.676								
44		.769								
45	.383	.746								
46		.857								
47		.805								
48									.729	
49									.706	
50	-.302	.461				-.482				
51	-.322	.479				-.466				

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 11 iterations.

Source: SPSS Printout 2019

The (table 4.10) above presents the rotated component loadings which represents how the variables are weighted for each factor or component and the correlation between the variables and the component. The option that omits any of the correlations that is 0.3 or less was used. This makes the output easier to read by removing the clutter of low correlations that are probably not meaningful.

The columns under this heading are the rotated components that have been extracted. As it can be seen from the variance explained in Table 4.9, 10 components were extracted. These are the components that are of most interest to this study.

From Table 4.10, items 36, 37, 38, 39, 40 and 41 in the table load highly on component 1. Since these items addressed issues regarding the teaching performance of academic staff, component 1 could be called “academic staff teaching quality”. Items 43, 44, 45, 46 and 47 have the highest loads on component 2. These items are clearly on issues regarding research performance of academic staff, thus, component 2 could be called “academic staff research outputs”.

Items 14 and 15 have the highest loads on component 3. These items are stated to address issues about TQM practice of student focus, hence, component 3 could be called “student focus”. Items 23, 24 and 25 have the highest loads on component 4. Since these items addressed issues regarding the TQM practice of team work, component 4 could be called “team work”. Items 7, 8 and 9 have relatively higher loads on component 5. These items addressed issues regarding TQM practice of continuous improvement, thus, component 5 could be called “continuous improvement”. Items 1 and 2 have the highest loads on component 6. These are items

regarding issues of TQM practice of leadership and management commitment, thus, component 6 could be called “leadership/management commitment”.

Items 33 and 35 have the highest loads on component 7. These are items regarding perception of barriers to TQM practices, thus, component 7 could be called “barriers to TQM practices”. Items 26 and 27 have the highest loads on component 8. These items are stated to address issues about TQM practice of innovative practices, hence, component 8 could be called “innovative practices”. Items 48 and 49 have the highest loads on component 9. These are items regarding issues of community service performance of academic staff, thus, component 9 could be called “academic staff community services”. Items 16, 17, 19 and 20 have the highest loads on component 10. These are items regarding issues of TQM practice of academic staff involvement, thus, component 10 could be called “academic staff involvement”.

4.7 Multiple Regressions Assumptions

To ensure that the basic assumptions of multiple regression analysis are met, the variables were critically examined for normality, linearity and multicollinearity as noted by Hair *et al.*, (2010).

4.7.1 Normality

Tabachnick & Fidell (2007) opined that it is important that the variables as well as the liners groupings of variables be distributed normally. This Normalcy can be ascertained graphically (histogram residual plots) or statistically (using skewness and kurtosis). Statistically, a normal distribution is kurtosised or skewed very close to Zero while graphically, the shape of distribution remains continuous. With these assumptions well in place, a normal and independent distribution is said to be available.

In this study, the normality assumption was diagnosed by checking at both skewness and kurtosis at the same time looking at histogram residual plots. Based on the analysis, the residual appears to be normal and the values of skewness and kurtosis were close to zero. Table 4.6 show the result of the skewness and kurtosis of the study.

Table 4.11: Normality Test

Variables	N	Skewness	Kurtosis
Leadership Commitment	348	-1.012	1.549
Student Focus	384	-0.690	2.765
Continuous Improvement	348	-0.985	1.569
Academic Staff Involvement	348	-1.809	1.807
Team Work	348	-0.390	1.665
Process Focus	348	-1.119	2.361
Teaching Performance	384	-0.390	1.665
Research Performance	348	-0.446	1.229
Community Service	348	-.515	1.069
Performance			
Overall Performance	348	-.132	0.808
Barriers to TQM	348	-0.623	1.942

Source: SPSS Printout 2019

The result of the Table 4.11above indicates that both skweness and kurtosis is less than ± 2.58 as stated by Tabachnick and Fidel (2007). Therefore, the normality assumption was not violated (Afifi & Clark, 1998).

The table 4.11 above signifies that the variables are significantly correlated to the fact that there is no variable with a value of 0.9 which indicated that there is no problem of multicollinearity.

4.8 Multiple Regressions and Hypotheses Test

Multiple regression analysis provides an avenue of neutrally assessing the degree and character of the relationship between independent variables and the dependent variable (Field, 2009). The regression coefficient uses to show the relative importance of each of the independent variable in the prediction of the dependent variable. When independent variables are jointly regressed against the dependent variable in an attempt to explain the variance in it, the size of each regression coefficients will show how much an increase in one unit in the individual variable would affect the dependent variable, taking into cognizance all other individual variables and dependent variable cave in to multiple correlation coefficient.

Regression analysis was used to test the hypothesis in this study; it is intended to investigate the relationship between predicting as well as the criterion variables respectively. For the conduct of regression analysis large sample is required and considered appropriate and also the underlying assumptions of multiple regressions were fulfilled (Hair *et al.*, 2010). This assumption includes normality, linearity and multicollinearity, this makes the conduct of multiple regression analysis appropriate.

Accordingly, the responses from the questionnaires administered to students were used to test the first hypothesis and achieve objective one because the issue of student focus can only be appropriately addressed from the student perspective. The response from the questionnaire administered to academic staff were used to test second, third, fourth and fifth hypotheses and achieve their respective objectives.

4.8.1 Testing of Hypothesis:

Objective One –examine the effect of Students Focus on Academic Staff Productivity

To achieve the first objective, which is to examine the effect of students focus on academic staff productivity, Regression method was used where the dependent variable is academic staff productivity and the independent variables are the various components of TQM practices regarding student focus such as close contact with students, identifying student's needs and expectation, measurement of student satisfaction, academic staff awareness of student needs, feedback on quality of teaching and facilities. Table 4.12 shows the result of model summary (coefficient determination) of the first objective.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	84.06	3.714		22.63	.000
	CCS	.061	.233	.042	.263	.793
	SNE	.285	.128	.212	2.219	.027
	MSS	.267	.124	.181	2.152	.032
	ASN	-.199	.263	-.141	-.756	.450
	FQT	.371	.090	.301	4.121	.000
R = .543 ^a R Square = .295 Adjusted R Square = .285 Durbin-Watson = .154 F ratio = 28.735 Sig. = .000 Df = 5, 379						

Note: CCS is Close contact with students; SNE is identifying student's needs and expectation; MSS is measurement of student satisfaction; ASN is academic staff awareness of student needs; FQT is feedback on quality of teaching and facilities

a. Dependent Variable: Teaching Performance

b. Predictors: (Constant), Close contact with students, identifying student's needs and expectation, measurement of student satisfaction, academic staff awareness of student needs, feedback on quality of teaching and facilities
Source: SPSS Printout, 2019.

Table 4.12 presents the analysis of the effect of student focus (which is Close contact with students, identifying student's needs and expectation, measurement of student satisfaction, continuous improvement, academic staff awareness of student needs, feedback on quality of teaching and facilities) on academic staff teaching performance. The table shows R-squared and Adjusted R-squared to be 0.295 and 0.286 respectively. This implies that student focus explains 29.5% of variation in academic staff teaching performance.

Meanwhile, the analysis of variance (ANOVA) for the model. F-statistic is shown with value 28.735 and probability value 0.000, indicating that the reported F-statistic is significant. This indicates that the overall model is significant. That is, students focus has significant effect on academic staff productivity in selected universities in North-Central Nigeria.

However, the coefficients of the effect of student focus on academic staff productivity. The result shows that all the variables of student focus have positive signs except academic staff awareness of student needs which has negative sign (however, not significant). Only the positive effects of student focus such as identifying student's needs and expectation, measurement of student satisfaction and feedback on quality of teaching and facilities are found to be statistically significant. This is evident from their respective probability values (Sig.) which are 0.027, 0.032, 0.000, and 0.000, being less than 5% (0.05) significance level.

The significant positive coefficient values of identifying student's needs and expectation, measurement of student satisfaction and feedback on quality of teaching and facilities (0.122, 0.017, 0.064 and 0.039 respectively) indicate that increase in each of these variables increases productivity of academic staff. In other words, improvements in total quality management in aspects of student focus that relates to identifying the needs and expectations of students, measuring students' satisfaction and getting prompt feedback from students on the quality of teaching facilities will bring an improvement in productivity of academic staff.

Close contact with students and academic staff awareness of student needs are not significant with $p\text{-value} > 0.05$. The possible argument for this might be the recent sex-for-grade scandals among academics and recently sexual harassment law enacted by the national assembly. Since close contact is not significant, then, awareness of students needs by the academic staff will be practically impossible as closeness influence awareness of needs.

The standardized coefficients show the variable with the most effect on productivity of academic staff. Of all the significant variables, feedback on quality of teaching and facilities has the most effect on productivity of academic staff, as its standardized coefficient (0.301) is the greatest. This is followed by the effect of identifying student's needs and expectation (0.212), then the effect of measurement of student satisfaction (0.181).

4.8.2 Testing Hypothesis: Objective Two –determine the relationship between continuous improvement and quality of teaching of academic staff

Table 4.13 presents the correlation analysis to achieve the second objective which is to investigate the relationship between continuous improvement and quality of teaching of academic staff in Nigerian North-Central Universities.

Table 4.13: Correlations Matrix

		AT	QTT	QPP	QCB	QT
AT	Pearson Correlation	1	.574**	.338**	.241**	-.047
	Sig. (2-tailed)		.000	.000	.000	.360
	N	348	348	348	348	348
QTT	Pearson Correlation	.574**	1	.410**	.082	-.025
	Sig. (2-tailed)	.000		.000	.110	.624
	N	348	348	348	348	348
QPP	Pearson Correlation	.338**	.410**	1	.321**	.010
	Sig. (2-tailed)	.000	.000		.000	.840
	N	348	348	348	348	348
QCB	Pearson Correlation	.241**	.082	.321**	1	.433**
	Sig. (2-tailed)	.000	.110	.000		.000
	N	348	348	348	348	348
QT	Pearson Correlation	-.047	-.025	.010	.433**	1
	Sig. (2-tailed)	.360	.624	.840	.000	
	N	348	348	348	348	348

Source: Source: Author's Computation, 2019.

*Note: **. Correlation is significant at the 0.01 level (2-tailed); AT is improvement in active team; QTT is improvement in quality of tools and techniques; QPP is improvement in quality of products and processes; QCB is improvement in quality of coordinating body; and QT is quality of teaching.*

The column titled 'AT' presents the correlation coefficients of the relationship between improvement in active team and each of improvement in quality of tools and techniques, improvement in quality of products and processes, improvement in quality of coordinating body and quality of teaching of academic staff. The correlation coefficient of the relationship between improvement in active team and improvement in quality of tools and techniques shows a positive value of 0.574 and p-value of 0.000, indicating that there is a significant relationship between improvement in active team and improvement in quality of tools and techniques.

This implies that improvement in active team is positively associated with improvement in quality of tools and techniques, indicating that improvement in active team is moving in the same direction with improvement in quality of tools and techniques.

The correlation coefficient of the relationship between improvement in active team and improvement in quality of products and processes also shows a positive value of 0.338 and p-value of 0.000, indicating that there is significant relationship between improvement in active team and improvement in quality of products and processes. This implies that there is positive association between improvement in active team and improvement in quality of products and processes. These results indicated that improvement in active team is moving in the same direction with improvement in quality of products and processes.

The correlation coefficient of the relationship between improvement in active team and improvement in quality of coordinating body also shows a positive value of 0.241

and p-value of 0.000, indicating that there is significant relationship between improvement in active team and improvement in quality of coordinating body. This implies that there is positive association between improvement in active team and improvement in quality of coordinating body. These results also indicated that improvement in active team is moving in the same direction with improvement in quality of coordinating body.

The correlation coefficient of the relationship between improvement in active team and quality of teaching of academic staff shows a negative value of -0.47 and p-value of 0.360, indicating that there is no significant relationship between improvement in active team and quality of teaching of academic staff. This implies that improvements in active team and quality of teaching of academic staff are not significantly related.

The column titled 'QTT' presents the correlation coefficients of the relationship between improvement in quality of tools and technique and each of improvement in quality of products and processes, improvement in quality of coordinating body and quality of teaching of academic staff. The correlation coefficient of the relationship between improvement in quality of tools and technique and improvement in quality of products and processes shows a positive value of 0.410 and p-value of 0.000, indicating that there is a significant positive relationship between improvement in quality of tools and technique and improvement in quality of products and processes. This implies that improvement in quality of tools and techniques available at the disposal of academic staff is positively associated with improvement in quality of products and processes. This gives an indication that improvement in quality of tools

and techniques is moving in the same direction with improvement in quality of products and processes.

The correlation coefficient of the relationship between improvement in quality of tools and techniques and improvement in quality of coordinating body shows a positive value of 0.082 and p-value of 0.110, indicating that there is no significant relationship between improvement in quality of tools and techniques and improvement in quality of coordinating body. This implies that improvement in quality of tools and techniques and improvement in quality of coordinating body are not significantly related.

The correlation coefficient of the relationship between improvement in quality of tools and techniques and quality of teaching of academic staff shows a negative value of -0.025 and p-value of 0.624, indicating that there is no significant relationship between improvement in quality of tools and techniques and quality of teaching of academic staff. This implies that improvement in quality of tools and techniques and quality of teaching of academic staff are not significantly related.

The column titled 'QPP' presents the correlation coefficients of the relationship between improvement in quality of products and processes and each of improvement in quality of coordinating body and quality of teaching of academic staff. The correlation coefficient of the relationship between improvement in quality of products and processes and improvement in quality of coordinating body shows a positive value of 0.321 and p-value of 0.000, indicating that there is a significant positive relationship between improvement in quality of products and processes and

improvement in quality of coordinating body. This implies that improvement in quality of products and processes is positively associated with improvement in quality of coordinating body. This gives an indication that improvement in quality of products and processes is moving in the same direction with improvement in quality of coordinating body.

The correlation coefficient of the relationship between improvement in quality of products and processes and quality of teaching of academic staff shows a positive value of 0.010 and p-value of 0.840, indicating that there is no significant relationship between improvement in quality of products and processes and quality of teaching of academic staff. This implies that improvement in quality of products and processes and quality of teaching of academic staff are not significantly related.

The column titled 'QCB' presents the correlation coefficients of the relationship between improvement in quality of coordinating body and quality of teaching of academic staff. The correlation coefficient of the relationship between improvement in quality of coordinating body and quality of teaching of academic staff shows a positive value of 0.433 and p-value of 0.000, indicating that there is a significant positive relationship between improvement in quality of coordinating body and quality of teaching of academic staff. This implies that improvement in quality of office in charge of coordinating and assessing academic staff in the university setting is positively associated with quality of teaching of academic staff. This gives an indication that better quality of this body and quality of teaching of academic staff are moving in the same direction.

The results of the correlation analysis presented in Table 4.16 generally indicate that of all items of continuous improvement, only the improvement in the quality of the regulatory body seeing into the affairs of performance and promotion of academic staff has significant relationship with quality of teaching of academic staff. This relationship is positive which signifies that increase in the quality of this regulatory body is associated with increase in quality of teaching of academic staff.

4.8.3 Testing of Hypothesis: Objective Three –Examine the Impact of Team Work on Academic Staff research output

To achieve the third objective, which is to examine the impact of team work on research output of academic staff, Regression method was used where the dependent variable is academic staff research output and the independent variables are the various components of TQM practices regarding team work such as pleasant environment exists in all working areas, positive values such as trust, honesty, hardworking, are fostered by management, teamwork and involvement are normal practices in my institution, my institution adopts ‘employee satisfaction’ initiatives. Table 4.14 shows the result of model summary (coefficient determination) of the third objective.

Table 4.14: Coefficients ^a

		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-16.132	10.969		-1.471	.042
	PE	23.707	2.190	.482	10.826	.000
	THH	17.071	2.776	.362	6.149	.000
	TI	9.725	2.183	.229	4.455	.000
	ESI	5.482	1.708	.153	3.209	.001

R = .628 ^a R Square = .394 Adjusted R Square = .388 F ratio = 55.977 Sig. = .000 Df = 4, 344
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Note: PE is a pleasant environment exists in all working areas; THH is positive values such as trust, honesty, hardworking, are fostered by management; TI is teamwork and involvement are normal practices in my institution; ESI is my institution adopts 'Employee satisfaction' initiatives

a. Dependent Variable: Research Output

b. Predictors: (Constant), pleasant environment working areas, positive values, teamwork and involvement, employee satisfaction initiatives

Source: SPSS Printout, 2019.

Table 4.14 presents the model summary of the impact of team work on research output of academic staff in North-Central Nigerian universities. The table shows R-squared and Adjusted R-squared to be 0.394 and 0.388 respectively. This implies that team work explains about 39.4% of variation in research output of academic staff in North-Central Nigerian universities.

However, the analysis of variance (ANOVA) for the model. F-statistic is shown with value 55.977 and probability value 0.000 indicating the reported F-statistic is significant. This implies that the overall model is significant. In other words, team work has significant impact on research conducted by academic staff in Nigerian universities.

Thus, the coefficients of the effect of team work on academic staff research output. The result shows that all the variables of team work have positive signs. All the variables of team work such as pleasant environment, trust, honesty, hardworking teamwork and involvement employee satisfaction initiatives are found to be statistically significant. This is evident from their respective probability values (Sig.) which are 0.000, 0.000, 0.000, and 0.001, being less than 5% (0.05) significance level.

The significant positive coefficient values of pleasant environment, positive values such as trust, honesty and hardworking, teamwork and involvement and adopting employee satisfaction initiatives (23.707, 17.071 9.725 and 5.482 respectively) indicate that increase in each of these variables increases research output of academic staff.

In other words, improvements in total quality management in aspects of team work that relates to existence of pleasant environment, encouraging positive values among staff, improved practices of team work and involvement, and adopting employee satisfaction initiatives will bring an improvement in research output of academic staff. The standardized coefficients show the variable with the most effect on research output of academic staff. Of all these significant variables, pleasant environment has the most effect on research output of academic staff, as its standardized coefficient (0.482) is the greatest. This is followed by the effect of positive values such as trust, honesty, hardworking (0.362), then the effect of teamwork and involvement (0.229) and finally, the effect of adopting employee satisfaction initiatives (0.153).

4.8.4 Testing of Hypothesis: Objective Four – Evaluate the Impact of leadership commitment on community services of academic staff

To achieve the fourth objective, which is to examine the impact of leadership commitment on community services of academic staff, Regression method was used where the dependent variable is academic staff community services and the independent variables are the various components of TQM practices regarding leadership and management commitment such as full commitment to TQM; effective

implementation strategies; effective understanding of TQM; commitment to reward, recognition and promotion; and commitment to empowering environment. Table 4.15 shows the result of model summary (coefficient determination) of the fourth objective.

Table 4.15: Coefficients ^a

		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-2.850	10.286		-.277	.048
	FC	2.124	2.635	.046	.806	.021.
	EIS	8.867	2.646	.187	3.352	.001
	CRRP	12.361	1.530	.346	8.078	.000
	CKI	13.722	2.063	.395	6.651	.000
	CEE	8.906	2.362	.222	3.771	.000
R = .639 ^a R Square = .408 Adjusted R Square = .400 F ratio = 47.304 Sig. = .000 Df = 5, 343						

Note: FC is full commitment to TQM; EIS is effective implementation strategies; CRRP is commitment to reward, recognition and promotion; CKI is commitment to key process improvement; and CEE is commitment to empowering environment

a. Dependent Variable: Community Services

b. Predictors: (Constant), full commitment to TQM; effective implementation strategies; effective understanding of TQM; commitment to reward, recognition and promotion; and commitment to empowering environment

Source: SPSS Printout, 2019.

Table 4.15 presents the model summary of the impact of leadership commitment on community services of academic staff in North-Central Nigerian universities. The table shows R-squared and Adjusted R-squared to be 0.408 and 0.400 respectively. This implies that team work explains about 40.8% of variation in community services by staff in North-Central Nigerian universities.

Thus, the analysis of variance (ANOVA) for the model. F-statistic is shown with value 47.304 and probability value 0.000 indicating the reported F-statistic is significant. This implies that the overall model is significant. In other words, leadership commitment has significant impact on community services of academic staff in Nigerian universities.

However, the coefficients of the effect of leadership commitment on academic staff community services. The result shows that all the variables of leadership commitment have positive signs. Leadership commitment such as effective implementation strategies, commitment to reward, recognition and promotion, commitment to key process improvement and commitment to empowering environment are found to be statistically significant in their impact on community services of academic staff. This is evident from their respective probability values (Sig.) which are 0.001, 0.000, 0.000, and 0.000, being less than 5% (0.05) significance level.

On the other hand, full commitment to TQM is not statistically significant in having an impact on community services. The significant positive coefficient values of effective implementation strategies, commitment to reward, recognition and promotion, commitment to key process improvement and commitment to empowering environment (8.867, 12.361 13.722 and 8.906 respectively) indicate that increase in each of these variables increases community services of academic staff. In other words, improvements in total quality management in aspects of leadership commitment that relates to effective implementation strategies, commitment to reward, recognition and promotion, commitment to key process improvement and

commitment to empowering environment will bring an improvement in community services of academic staff.

The standardized coefficients show the variable with the most effect on community services of academic staff. Of all these significant variables, commitment to key process improvement has the most effect on community services of academic staff, as its standardized coefficient (0.395) is the greatest. This is followed by the effect of commitment to reward, recognition and promotion (0.346), then the effect of commitment to empowering environment (0.222) and finally, the effect of effective implementation strategies (0.187).

4.8.5 Testing of Hypothesis: Objective Five –Assess the Impact of Innovative Practices on Academic Staff Efficiency

To achieve the fourth objective, this is to examine the impact of innovative practices on the efficiency of academic staff. Regression method was used where the dependent variable is academic staff efficiency and the independent variables are the TQM practices regarding innovative practices such as creativity, product focus and optimization. Table 4.16 shows the result of model summary (coefficient determination) of the fifth objective.

Table 4.16:		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	-1.759	.669		-2.629	.009
	CRT	.974	.009	.982	113.119	.000
	PF	.009	.006	.013	1.552	.121
	OPT	.213	.017	.367	12.529	.000
R = .989 ^a						

R Square = .978 Adjusted R Square = .978 F ratio = 5137.804 Sig. = .000 Df = 3, 345

Note: CRT is creativity; PF is product focus; OPT is optimization

a. Dependent Variable: Academic staff efficiency

b. Predictors: (Constant), creativity, product focus, optimization

Source: SPSS Printout, 2019.

Table 4.16 presents the model summary of the impact of innovative practices on academic staff efficiency in North-Central Nigerian Universities. The table shows R-squared and Adjusted R-squared to be 0.987 and 0.978 respectively. This implies that innovative practices explain about 98.7% of variation in academic staff efficiency in North-Central Nigerian Universities.

The analysis of variance (ANOVA) for the model. F-statistic is shown with value 5137.804 and probability value 0.000 indicating the reported F-statistic is significant. This implies that the overall model is significant. In other words, innovative practices have significant impact on academic staff efficiency in Nigerian Universities.

The coefficients of the effect of innovative practices on academic staff efficiency. The result shows that creativity, product focus and optimization have positive signs. However, creativity and optimization are the only variables found to be statistically significant in their impact on the efficiency of academic staff. This is evident from their probability values (Sig.) which is 0.000, being less than 5% (0.05) significance level. On the other hand, product focus is not statistically significant in having an impact on academic staff efficiency. The significant positive coefficient value of

creativity (0.982) indicates that increase in creativity will increase the efficiency of academic staff.

In other words, improvements in total quality management in aspects of innovative practices that relate to creativity will bring an improvement in the efficiency of academic staff. Similarly, the significant positive coefficient value of optimization (0.367) indicates that increase in optimization will increase the efficiency of academic staff. In other words, improvements in total quality management in aspects of innovative practices that relate to optimization will bring an improvement in the efficiency of academic staff.

4.10 Discussions of Findings

As explained in the empirical findings, the TQM practice in the academic environment context, vis-à-vis student focus, continuous improvement, team work, leadership commitment, and innovative practices possess the potentials to predict the productivity, quality of teaching, research output, community services and efficiency of academic staff in Universities in Nigeria. The discussion mainly focuses on the research questions stated in Chapter One of this study. Research objectives are also inline with research questions. There are five hypotheses formulated on the basis of the objectives of the study.

4.9.1 Students Focus and productivity of Academic Staff

The first research objective examined the impact of student focus on academic staff productivity in North Central University in Nigeria; the multiple regression analysis

was conducted to test the stated hypothesis. The result indicates that the student focus metrics such as identifying student's needs and expectation; measurement of student satisfaction; feedback on quality of teaching and facilities; close contact with students and academic staff awareness of student needs are found to jointly have impact on academic staff productivity with the following statistic values ($F= 22.452$, $\beta = 0.285$, 0.267 , and 0.371 respectively. $p < 0.05$), hence, the Hypothesis H_{01} is rejected.

As such the result indicates that the student focus in the area of identifying student's needs and expectation; measurement of student satisfaction; feedback on quality of teaching and facilities; close contact with students and academic staff awareness of student needs significantly influence academic staff productivity. This findings is in line with the study of Adeolu (2011) and Gandhi (2015) both are of the opinion that feedback on quality of teaching influence academic staff productivity.

4.9.2 Continuous Improvement and quality of teaching of Academic Staff

The second research objective examined the impact of continuous improvement on academic staff quality of teaching in North Central Nigerian University. The Pearson correlation analysis was conducted to test the stated hypothesis. The result indicates that the continuous improvement metric such as improvement in quality of coordinating body is found to have positive relationship with academic staff teaching quality with the following statistic values ($r= 0.433$, $p < 0.05$), hence, the Hypothesis H_{02} is rejected. As such the result indicates that continuous improvement in the area of quality of coordinating body is significantly moving in the same direction with academic staff teaching quality. The finding is concurrent with the submission of

Adetunji (2015) and Sadikoglu et al (2014) who studies revealed that continuous improvement in quality improve the quality of output.

4.9.3 Team Work and Research Outputs of Academic Staff

The third research objective examined the impact of team work on academic staff research outputs in North Central Nigerian Universities; the multiple regression analysis was employed on the data of the study, which provided substantial evidence indicating that team work has strong influence on research outputs of academic staff. The result indicates that team work variables, particularly, those related to team member involvement, academic staff satisfaction initiatives and employee work environment are found to jointly predict research outputs of academic staff with the following statistics ($F = 43.773$, $\beta = 0.229, 0.153$, and 0.482 respectively and $p < 0.05$), hence, the Hypothesis H_{03} is rejected. As such the result indicates that teamwork significantly influence research outputs of academic staff in North Central Nigerian Universities. This result is in agreement with the study of Osayawe et al (2005) and Aduke (2015) whose findings revealed that team work leads to productivity improvement.

4.9.4 Leadership Commitment and Community Services Academic Staff

The fourth research objective examined the impact of leadership commitment on academic staff community services in North Central Nigerian Universities. The multiple regression analysis was employed on the data of the study, which provided substantial evidence indicating that leadership commitment has strong influence on community services of academic staff. The result indicates that leadership

commitment variables, particularly, those related to effective implementation strategies, commitment to reward, recognition and promotion, commitment to key process improvement and commitment to empowering environment are found to jointly predict community services of academic staff with the following statistics ($F=36.690$, $\beta = 0.046, 0.187, 0.346, 0.395$ and 0.222 respectively and $p < 0.05$), hence, the Hypothesis H_{04} is rejected. As such the result indicates that leadership commitment significantly influence community services of academic staff in North Central Nigerian Universities. The study of Ernest et al (2015) emphasized leadership commitment as a key TQM practices.

4.9.5 Innovative Practices and Academic Staff Efficiency

The fifth research objective examined the impact of innovative practices on academic staff efficiency in North Central Nigerian Universities. The multiple regression analysis was employed on the data of the study, which provided substantial evidence indicating that innovative practices has strong influence on the efficiency of academic staff. The result indicates that innovative practices such as creativity and optimization in particular, are found to influence academic staff efficiency while all variables are found to jointly predict the efficiency of academic staff with the following statistics ($F= 4020.890$, $\beta = 0.982, 0.689$, and 0.367 respectively and $p < 0.05$), hence, the Hypothesis H_{05} is rejected. As such the result indicates that innovative practices significantly influence the efficiency of academic staff in North Central Nigerian Universities. The findings is in line with the study of Faizan-Ali et al (2016) and Barbara (2017) whose research revealed that innovative practices aid efficiency.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Preamble

This chapter aimed at presenting the summary of major findings of the study, the conclusion and recommendations arrived at based on the findings of the study.

5.1 Summary

The study examined the impact of total quality management (TQM) practices on academic staff performance in selected Universities in North- Central, Nigeria. It however achieved this through specific objectives which include to: (i) examine the effect of students focus on academic staff productivity in North- Central, Nigerian Universities; (ii) determine the relationship between continuous improvement and quality of teaching of academic staff in North- Central, Nigerian Universities; (iii) examine the impact of team work on academic staff research output in North- Central, Nigerian Universities; (iv) evaluate the impact of leadership commitment on community services of academic staff in North- Central, Nigerian Universities; and (v) assess the impact of innovative practices on academic staff efficiency in North- Central, Nigerian Universities.

Summary of major findings of the study are:

The results of the Ordinary Least Squares Regression for objective one show that students focus has significant impact on the productivity of academic staff in North- Central, Universities. The joint significance of the model measured by F-statistic shows a value of 22.452. Identifying student's needs and expectation, measurement of

student satisfaction and feedback on quality of teaching and facilities, are the individual variables that have significant impact on academic staff productivity in North –Central, Universities (with p-values of 0.027, 0.032 and 0.000 respectively) while close contact with students and academic staff awareness of student needs do not have significant impact on productivity of academic staff (with p-values of 0.793 and 0.450 respectively).

This indicates that student focus have significant impact on productivity of academic staff in the area of Identifying student's needs and expectation, measurement of student satisfaction and feedback on quality of teaching and facilities. This findings are in line with the previous studies conducted by Gandhi (2018); Barbara Aquilani, Cecilia Silvestri, Ruggieri and Gatti (2017); Izogo & Ogba (2015) which agreed that TQM adoption have significant impact on the quality of University education. Also, Obeidat, Hashem, Alansari, Tarhini, and Al-Salti, (2016) from Jordan revealed that the adoption of TQM practice will have positive influence on the output of University education.

Furthermore, this study is in line with the study of Faizan, Ali, Zhou, Hussain, Nair, and Ragavan (2016) on TQM practice in Malaysia. The study shows that adoption of TQM practice, particularly from the student focus point of view, will significantly influence the productivity of academic staff in universities, most especially, in terms of Identifying student's needs and expectation, measurement of student satisfaction and feedback on quality of teaching and facilities.

Similarly, the results of objective two shows that continuous improvement have significant positive relationship with academic staff teaching quality. This has a

positive relationship measured by the correlation coefficient value of 0.433. Improvement in quality of coordinating body is the individual variable that has significant relationship with quality of teaching of academic staff in North Central Nigerian Universities (with p-values of 0.000).

On the other hand, Improvement in active team, improvement in quality of tools and techniques, and improvement in quality of products and processes do not have significant relationship with quality of teaching of academic staff in North Central Nigerian Universities (with p-values of 0.360, 0.624, and 0.840 respectively). This indicates that continuous improvement has significant relationship with quality of teaching of academic staff in the area of improvement in quality of coordinating body.

This findings are in line with the prior literature on TQM practice carried out by Barbara Aquilani, Cecilia Silvestri, Ruggieri and Gatti (2017); Izogo & Ogba (2015); Adetunji (2015) which agreed that TQM adoption have significant relationship with the University education performance. In addition, this study confirmed the study conducted by Sadikoglu & Olcay (2014) from Turkey which revealed that the adoption of TQM practice will have positive influence on the University education performance. Furthermore, this study is in line with the study of Nnennaya (2014) on TQM practice in Nigeria. The study shows that adoption of the TQM practice of continuous improvement will significantly move in the same direction with quality of teaching of academic staff most especially in the area of improvement in quality of coordinating body.

In addition, the results of objective three show that team work have significant impact on research output of academic staff in North- Central, Nigerian Universities, with joint significance of the model measured by F-statistic value of 43.773. Team member involvement, academic staff satisfaction initiatives, existence of pleasant environment and encouraging positive values among staff have statistically significant impact on research output of academic staff (with standardized $\beta = 0.229, 0.153, 0.482$ and 0.362 ; and p-values = 0.000 each). This indicate that team work has significant influence on academic staff research output.

The findings of this study are in line with the previous study conducted by Syed (2013) which carried out survey in Pakistan. The study showed that team work has significant impact on university performance. Additionally, the study are in line with previous studies by Izogo & Ogba (2015);Adetunji (2015) among others.

Furthermore, the results of objective four shows that leadership commitment have significant impact on community services of academic staff in North Central Universities, with joint significance of the model measured by F-statistic value of 36.960. Specifically, effective implementation strategies, commitment to reward, recognition and promotion, commitment to key process improvement and commitment to empowering environment have statistically significant impact on community services of academic staff (with standardized $\beta = 0.187, 0.346, 0.395$ and 0.222 ; and p-values = 0.000 each). This shows that leadership commitment have significant impact on community services of academic staff in the educational sector. This is agreement with the prior studies (Adeolu, 2011; Akhuemonkhan, Raim

&Dada, 2014; Obeidat, Hashem, Alansari, Tarhini, & Al-Salti, 2016) which revealed that TQM practice have significant impact on university performance.

Finally, the result of multiple regression analysis used to achieve the fifth objective shows that innovative practices have significant impact on academic staff efficiency in North- Central, Nigerian universities, with joint significance of the model measured by F-statistic value of 4020.890. Creativity and optimization, in particular, have significant impact on academic staff efficiency in the Nigerian Universities (with respective standardized $\beta = 0.982$ and 0.367 ; and $p\text{-value} = 0.000$ in both cases). This indicates that innovative practices of creativity and optimization are good predictors for academic staff efficiency in the Nigerian Universities.

This is in agreement with the previous studies of Sadikoglu & Olcay (2014) from Turkey. The study revealed that employee involvement has positive significant influence on their performance in the educational sector.

5.2 Conclusion

Total quality management is a philosophy that is rooted in a combination of management tools and innovative efforts that can upgrade the level of performance of an organisation. As such, the adoption of Total Quality Management in the University environment can act as a panacea in filling the gap between what the nation desired and what is currently obtainable in Nigerian educational sector through the improvement in academic staff performance. This makes it imperative to know the nature of TQM practices in Nigerian Universities and how it has impact on academic

staff performance, and also draw inferences thereof. The following conclusions are therefore derived based on the findings of this study.

The impact of the adoption of TQM practices in the area of student focus on academic staff productivity in North- Central, Nigerian Universities is established from the findings of this study. Identifying student's needs and expectation, measurement of student satisfaction and feedback on quality of teaching and facilities are important in improving the productivity of academic staff in Nigerian Universities. Therefore, a step to improve the adoption of TQM in these regards is vital for improved performance of academic staff.

Quality of teaching of academic staff in Nigerian Universities is highly related to the adoption of TQM practice of continuous improvement. The major aspect of continuous improvement that is important in order to improve the teaching quality of academic staff in Nigerian Universities is improvement in quality of coordinating body. Academic staff teaching quality is high in institutions where the level of TQM practices of quality of coordinating body is high.

TQM practices of team work in Nigerian Universities are important for improved research outputs of academic staff. Team member involvement, academic staff satisfaction initiatives, existence of pleasant environment and encouraging positive values among staff are the most important team work strategies that could be employed to increase the research outputs of academic staff in Nigerian Universities.

TQM practices of leadership or management commitment in Nigerian Universities are important for improved community services of academic staff. Effective

implementation strategies, commitment to reward, recognition and promotion, commitment to key process improvement and commitment to empowering environment are the most important leadership commitment that could be employed to increase the community services of academic staff in Nigerian Universities.

The innovative practices are vital to improving the efficiency of academic staff. Improved level of creativity and optimization in these Universities could be used to increase the efficiency of academic staff.

5.3 Recommendations

Based on the findings and conclusions drawn from this study, the following recommendations are made:

- i. The findings revealed that TQM practice of student focus as a philosophy can be employed as a veritable tool to improve the productivity of academic staff in universities. In doing this, however, attention of academic staff should be directed to identifying the needs and expectation of the students and also the quality of teaching facilities.
- ii. For TQM to successfully bring an improvement to academic staff teaching quality, it is recommended that the appointment and promotion of staff should be stepped up by inaugurating members with up-to-date knowledge of teaching and conduct of research. This will trigger step-up of the quality of teaching of staff in the universities.
- iii. University management should show a high sense of commitment to TQM practice of encouraging team work among academic staff in order that their research outputs are improved.

- iv. The study recommends that federal government should as a matter of urgency address the issue of underfunding of Universities, University management should be strictly committed to the welfare of academic staff in order for them to make reasonable contributions to the immediate community of the university environment.
- v. In decision making most especially those that affect staff welfare, staff representatives should always be carried along before making vital decision. Federal government representatives should always engage Universities staff labour union in resolving their differences rather allowing any slightest differences to degenerate into strike action.

5.4 Areas for further study

This research work examines the impact of total quality management on academic staff performance in North- Central, Nigerian Universities with emphasis on both public and private Universities in north central zone of Nigeria. Further research can focus on comparing the application of total quality management public and private universities in other regions of Nigeria. Also, future study can be done in other sectors such as constructions and mining industries.

5.5 Contributions to Knowledge

Most previous studies conducted on impact of total quality management on quality focused more on manufacturing sector with relatively few on educational sector but this present study focus more on the impact of total quality management on academic staff performance in Nigerian Universities. The study equally revealed that in

implementing TQM as a philosophy, most organisations focuses more on output rather than the process. In other words, University management attention should not necessarily be on how many first class candidates they can produce but rather more attention should be on the process of producing those graduates of which the performance of academic staff in terms of their productivity, teaching quality, research outputs and community services are vital.

The study has also identified some variables that need to be properly addressed in implementing TQM in Universities. These include student focus, continuous improvement, team work, leadership or management commitment and above all innovative practices which has received little attention in the literature.

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APPENDICES

UNIVERSITY OF ILORIN

DEPARTMENT OF BUSINESS ADMINISTRATION

QUESTIONNAIRE FOR ACADEMIC STAFF

RESEARCH TOPIC: IMPACT OF TOTAL QUALITY MANAGEMENT (TQM) ON ACADEMIC STAFF PERFORMANCE IN SELECTED NIGERIAN UNIVERSITIES

Dear respondent,

I am a post graduate student in the Department of Business Administration, University of Ilorin, Kwara State Nigeria conducting a research on the above topic. In view of that, I solicit your support towards the success of this research work by Kindly completing the attached questionnaire. It is highly imperative to let you know that all information given are purely for academic exercise hence all responses shall be treated confidentially.

Thanks for your anticipated cooperation

Yours faithfully

ADEBOLA, Damilare Emman

SECTION A: General Information

1. Gender (a) Male [] (b) Female []
2. Age (a) 18 – 30 [] (b) 31 – 45 [] (c) 46 – 55 [] (d) 56 and above []
3. Marital status (a) Married [] (b) Single [] (c) Divorce []
(d) Widow/widower []
4. Years of experience (a) 1-5 years [] (b) 6-10 years [] (c) 11 – 20 years [] (d) 20 years and above []
5. Current position (a) Graduate assistant [] (b) Assistant lecturer [] (c) Lecturer II [] (d) Lecturer I [] (e) Senior lecturer (f) Associate professor [] (g) Professor []

SECTION B: Total Quality Management

Instructions: Kindly read carefully and Tick (✓) accordingly the extent to which you agree with the following statements as stated below.

1 = Strongly Disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, 5 = Strongly Agree.

S/N	Leadership/Management Commitment	1	2	3	4	5
1.	The management of my institution demonstrates full commitment towards TQM practices.					
2.	Management work together as a team to create the implementation strategies effectively.					
3.	Management reinforce TQM through the rewards, recognitions and promotions effectively.					
4.	Management create an empowering environment effectively.					
5.	Management takes the ownership for key process improvements.					
6.	My institution fulfils its social responsibilities (such as environment friendly operation, charity, etc).					
	Student Focus	1	2	3	4	5
7.	There exist a close contact among academic staff and students.					
8.	There is room for identifying student's needs and expectation.					
9.	There are ways and method of measurement of student satisfaction.					
10.	There is high level of awareness of student needs among academic staff.					
11.	There is feedback on quality of teaching and facilities from students.					
	Team Work	1	2	3	4	5
12.	A pleasant environment exists in all working areas.					
13.	Positive values such as trust, honesty, hardworking, are fostered by management.					
14.	Teamwork and involvement are normal practices in this institution.					
15.	This institution adopts 'Employee satisfaction' initiatives.					
	Continuous Improvement	1	2	3	4	5
16.	There is a quality improvement coordinating body (e.g. quality steering committee).					
17.	Improvement teams are active in all departments.					
18.	Quality improvement tools and techniques are widely used.					

19.	My institution practices continuous improvement of all its products and processes.					
	Innovative Practices	1	2	3	4	5
20.	There have been increase in the amount of spending by this institution on development of research-aiding equipment.					
21.	Extensive effort have been giving to increasing the availability of internet facilities.					
22.	This institution has recently spent enormously in developing time-efficient ways of getting things done.					
23.	A large amount of the equipment is currently under statistical process control.					
24.	The school management has placed much emphasis on state-of-the-art equipment in order to improve academic performance.					
25.	Physical structures such as research lab and researchers' lodge been ut in place in this institution.					
26.	In order to improve staff efficiency, better internet facilities have been subscribed to in this institution.					
27.	The number of innovation projects being started in the institution has surged recently.					
28.	new employees have recently been employed in R&D.					
29.	There are a number of new ideas in the pipeline.					
30.	Staff are encouraged to further their education.					
	Perception on Barriers to TQM	1	2	3	4	5
31.	Lack of understanding.					
32.	Lack of preparation (No budget, no sponsor).					
33.	Resistance to change (Too busy)					
34.	Lack of vision.					
35.	Lack of top management commitment.					
36.	Lack of customer focus.					
37.	Lack of resources.					
38.	Lack of systems and structures for TQM activities.					
39.	Availability to training.					
40.	Training with no purpose.					
41.	Costly consultancies, training programs.					

42.	Lack of rewards and recognition.					
43.	Lack of effective measurement criteria.					
44.	Lack of evaluation procedures and benchmark indices.					

SECTION C: Academic Staff Performance

Instructions: Kindly read carefully and Tick (✓) accordingly the extent to which you perceive your performance regarding the following statements as stated below.

1 = very low extent, 2 = low extent, 3 = Unsure, 4 = high extent, 5 = very high extent.

TQM Practices

S/N		1	2	3	4	5
1.	To what extent do you cope with the teaching loads of the university?					
2.	To what extent do you cope with student supervision and consultations?					
3.	To what extent do you perceive students' understanding of your teaching styles?					
4.	To what extent do you get involved in teaching co-curriculum?					
5.	To what extent are you consistent with the handling of academic research projects?					
6.	To what extent is your involvement in research works being conducted by peers in the university?					
7.	To what extent is your consistency in the production of research works?					
8.	To what extent is your encounter with research grants and funds?					
13.	To what extent do you participate in the activities of professional bodies related to your field?					
14.	To what extent do participate in research work review for institutions and organizations?					
15.	To what extent is your involvement as an internal or external examiner in your university and outside?					
16.	To what extent is your involvement in committees on societal problems					
17.	To what extent is your involvement in community development services and other voluntary activities?					

UNIVERSITY OF ILORIN
DEPARTMENT OF BUSINESS ADMINISTRATION
QUESTIONNAIRE FOR STUDENTS
RESEARCH TOPIC: IMPACT OF TOTAL QUALITY MANAGEMENT
(TQM) ON ACADEMIC STAFF PERFORMANCE IN SELECTED NIGERIAN
UNIVERSITIES

Dear respondent,

I am a post graduate student in the Department of Business Administration, University of Ilorin, Kwara State Nigeria conducting a research on the above topic. In view of that, I solicit your support towards the success of this research work by Kindly completing the attached questionnaire. It is highly imperative to let you know that all information given are purely for academic exercise hence all responses shall be treated confidentially.

Thanks for your anticipated cooperation

Yours faithfully

ADEBOLA, Damilare Emman

SECTION A: General Information

1. Gender (a) Male [] (b) Female []
2. Age (a) 18 – 30 [] (b) 31 – 45 [] (c) 46 – 55 [] (d) 56 and above []
3. Marital status (a) Married [] (b) Single [] (c) Divorce []
(d) Widow/widower []
4. Current level (a) 100 level [] (b) 200 level [] (c) 300 level []
(d) 400 level [] (e) 500 level []

SECTION B: Total Quality Management

Instructions: Kindly read carefully and Tick (✓) accordingly the extent to which you agree with the following statements as stated below.

1 = Strongly Disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, 5 = Strongly Agree.

S/N	Leadership/Management Commitment	1	2	3	4	5
1.	The management of my school demonstrates full commitment towards TQM practices.					
2.	Management work together as a team to create the implementation strategies effectively.					
3.	Management reinforce TQM through the rewards, recognitions and promotions effectively.					
4.	Management create an empowering environment effectively.					
5.	Management takes the ownership for key process improvements.					
6.	My school fulfils its social responsibilities (such as environment friendly operation, charity, etc).					
	Student Focus	1	2	3	4	5
7.	There exist a close contact among academic staff and students.					
8.	There is room for identifying student's needs and expectation.					
9.	There are ways and method of measurement of student satisfaction.					
10.	There is high level of awareness of student needs among academic staff.					
11.	There is feedback on quality of teaching and facilities from students.					
	Team Work	1	2	3	4	5
12.	A pleasant environment exists in all working areas.					
13.	Positive values such as trust, honesty, hardworking, are fostered by management.					
14.	Teamwork and involvement are normal practices in this school.					
15.	This school adopts 'Employee satisfaction' initiatives.					
	Continuous Improvement	1	2	3	4	5
16.	There is a quality improvement coordinating body (e.g. quality steering committee).					
17.	Improvement teams are active in all departments.					
18.	Quality improvement tools and techniques are widely used.					

19.	My school practices continuous improvement of all its products and processes.					
	Innovative Practices	1	2	3	4	5
20.	There have been increase in the amount of spending by this school on development of research-aiding equipment.					
21.	Extensive effort have been giving to increasing the availability of internet facilities.					
22.	This school has recently spent enormously in developing time-efficient ways of getting things done.					
23.	A large amount of the equipment is currently under statistical process control.					
24.	The school management has placed much emphasis on state-of-the-art equipment in order to improve academic performance.					
25.	Physical structures such as research lab and researchers' lodge have been in place in this school.					
26.	In order to improve staff efficiency, better internet facilities have been subscribed to in this institution.					
27.	The number of innovation projects being started in the institution has surged recently.					
28.	new employees have recently been employed in R&D.					
29.	There are a number of new ideas in the pipeline.					
30.	Staff are encouraged to further their education.					
	Perception on Barriers to TQM	1	2	3	4	5
31.	Lack of understanding.					
32.	Lack of preparation (No budget, no sponsor).					
33.	Resistance to change (Too busy)					
34.	Lack of vision.					
35.	Lack of top management commitment.					
36.	Lack of customer focus.					
37.	Lack of resources.					
38.	Lack of systems and structures for TQM activities.					
39.	Availability to training.					
40.	Training with no purpose.					
41.	Costly consultancies, training programs.					

42.	Lack of rewards and recognition.					
43.	Lack of effective measurement criteria.					
44.	Lack of evaluation procedures and benchmark indices.					

SECTION C: Academic Staff Performance

Instructions: Kindly read carefully and Tick (✓) accordingly the extent to which you perceive your performance regarding the following statements as stated below.

1 = very low extent, 2 = low extent, 3 = Unsure, 4 = high extent, 5 = very high extent.

TQM Practices

S/N		1	2	3	4	5
1.	To what extent do you think academic staff cope with the teaching loads of the university?					
2.	To what extent do you think academic staff cope with student supervision and consultations?					
3.	To what extent do you think academic staff perceive students' understanding of their teaching styles?					
4.	To what extent do you think academic staff get involved in teaching co-curriculum?					
5.	To what extent do you think academic staff are consistent with the handling of academic research projects?					
6.	To what extent do you perceive academic staff's involvement in research works being conducted by peers in the university?					
7.	To what extent do you perceive academic staff's consistency in the production of research works?					
8.	To what extent do you think academic staff encounter research grants and funds?					
13.	To what extent do you think academic staff participate in the activities of professional bodies related to their field?					
14.	To what extent do you think academic staff participate in research work review for institutions and organizations?					
15.	To what extent do you think academic staff are involved as internal or external examiner in your university and outside?					
16.	To what extent you think academic staff are involved in committees on societal problems					
17.	To what extent you think academic staff are involved in community development services and other voluntary activities?					

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.655
Bartlett's Test of Sphericity	Approx. Chi-Square	6450.449
	Df	2016
	Sig.	.000

Communalities

	Initial	Extraction
1	1.000	.621
2	1.000	.580
3	1.000	.732
4	1.000	.727
5	1.000	.648
6	1.000	.658
7	1.000	.774
8	1.000	.708
9	1.000	.755
10	1.000	.754
11	1.000	.740
12	1.000	.756
13	1.000	.615
14	1.000	.756
15	1.000	.691
16	1.000	.648
17	1.000	.755
18	1.000	.656
19	1.000	.688
20	1.000	.719
21	1.000	.629
22	1.000	.696

23	1.000	.738
24	1.000	.635
25	1.000	.672
26	1.000	.723
27	1.000	.628
28	1.000	.708
29	1.000	.736
30	1.000	.724
31	1.000	.660
32	1.000	.743
33	1.000	.694
34	1.000	.636
35	1.000	.670
36	1.000	.666
37	1.000	.652
38	1.000	.631
39	1.000	.596
40	1.000	.729
41	1.000	.694
42	1.000	.648
43	1.000	.598
44	1.000	.653
45	1.000	.471
46	1.000	.723
47	1.000	.630
48	1.000	.476
49	1.000	.738
50	1.000	.483
51	1.000	.461
52	1.000	.677
53	1.000	.457

54	1.000	.417
55	1.000	.691
56	1.000	.664
57	1.000	.614
58	1.000	.436

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.208	18.054	18.054	9.208	18.054	18.054	5.783	11.339	11.339
2	5.994	11.753	29.807	5.994	11.753	29.807	4.568	8.958	20.297
3	4.042	7.926	37.732	4.042	7.926	37.732	4.380	8.588	28.885
4	2.595	5.087	42.820	2.595	5.087	42.820	3.170	6.215	35.100
5	2.160	4.236	47.056	2.160	4.236	47.056	3.142	6.160	41.260
6	1.699	3.331	50.387	1.699	3.331	50.387	2.426	4.758	46.018
7	1.604	3.145	53.531	1.604	3.145	53.531	2.352	4.613	50.631
8	1.494	2.929	56.460	1.494	2.929	56.460	2.020	3.961	54.592
9	1.405	2.754	59.214	1.405	2.754	59.214	2.014	3.949	58.541
10	1.398	2.741	61.955	1.398	2.741	61.955	1.741	3.414	61.955
11	1.161	2.276	64.231						
12	1.126	2.207	66.439						
13	1.113	2.183	68.622						
14	1.014	1.989	70.611						
15	.944	1.850	72.461						
16	.841	1.650	74.111						
17	.802	1.572	75.683						
18	.759	1.487	77.170						
19	.734	1.440	78.610						
20	.722	1.417	80.027						
21	.676	1.325	81.351						
22	.641	1.257	82.608						

23	.602	1.180	83.788					
24	.571	1.120	84.909					
25	.552	1.082	85.991					
26	.505	.991	86.982					
27	.501	.982	87.964					
28	.469	.921	88.885					
29	.434	.851	89.736					
30	.419	.821	90.557					
31	.414	.811	91.368					
32	.393	.771	92.139					
33	.375	.734	92.873					
34	.355	.697	93.570					
35	.318	.623	94.193					
36	.307	.602	94.795					
37	.287	.563	95.358					
38	.282	.552	95.910					
39	.268	.525	96.435					
40	.228	.446	96.882					
41	.210	.412	97.294					
42	.198	.389	97.683					
43	.179	.352	98.035					
44	.175	.343	98.378					
45	.160	.313	98.691					
46	.156	.306	98.996					
47	.144	.282	99.278					
48	.137	.269	99.547					
49	.112	.219	99.766					
50	.075	.147	99.913					
51	.044	.087	100.000					

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component									
	1	2	3	4	5	6	7	8	9	10
1					.310	.656				
2						.699				
3					.654					
4			.632							
5			.737							
6			.521							
7			.453		.546					
8					.710					
9					.506					
10			.636							
11	-.539				.545					
12					.398				.488	
13					.457					
14			.667							
15			.677							
16			.536	.302						.347
17	-.324			.381	.311					.545
18	-.377							.406		
19			.382	.581						.682
20		.541								.637
21						.603				
22	-.489			.438						
23				.757						
24				.579						
25				.644						
26								.683		
27								.707		
28	.326							.380		
29							.329			
30	.651									
31										
32										
33	.766									
34							.768			
35							.724			
36	.729									
37	.780									
38	.378						.417			
39	.621									
40	-.621	.380					.302			
41	-.658	.321		-.331						
42								-.351		

43		.676								
44		.769								
45	.383	.746								
46		.857								
47		.805								
48								.729		
49								.706		
50	-.302	.461				-.482				
51	-.322	.479				-.466				

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 11 iterations.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.543 ^a	.295	.286	36.034

a. Predictors: (Constant), CCS, SNE, MSS, ASN, FQT

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	204498.872	5	40899.774	28.735	.000 ^b
	Residual	488210.238	343	1423.353		
	Total	692709.110	348			

a. Dependent Variable: Productivity

b. Predictors: (Constant), CCS, SNE, MSS, ASN, FQT

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	84.059	3.714		22.633	.000
	CCS	.061	.233	.042	.263	.793
	SNE	.285	.128	.212	2.219	.027
	MSS	.267	.124	.181	2.152	.032
	ASN	-.199	.263	-.141	-.756	.450
	FQT	.371	.090	.301	4.121	.000

a. Dependent Variable: Productivity

Correlations

		AT	QTT	QPP	QCB	QT
AT	Pearson Correlation	1	.574**	.338**	.241**	-.047
	Sig. (2-tailed)		.000	.000	.000	.360
	N	348	348	348	348	348
QTT	Pearson Correlation	.574**	1	.410**	.082	-.025
	Sig. (2-tailed)	.000		.000	.110	.624
	N	348	348	348	348	348
QPP	Pearson Correlation	.338**	.410**	1	.321**	.010
	Sig. (2-tailed)	.000	.000		.000	.840
	N	348	348	348	348	348
QCB	Pearson Correlation	.241**	.082	.321**	1	.433**
	Sig. (2-tailed)	.000	.110	.000		.000
	N	348	348	348	348	348
QT	Pearson Correlation	-.047	-.025	.010	.433**	1
	Sig. (2-tailed)	.360	.624	.840	.000	
	N	348	348	348	348	348

** . Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.628 ^a	.394	.388	22.854

a. Predictors: (Constant), PE, THH, TI, ESI

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	126128.029	4	31532.007	55.977	.000 ^b
	Residual	193774.734	344	563.299		
	Total	319902.763	348			

a. Dependent Variable: RO

b. Predictors: (Constant), PE, THH, TI, ESI

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-16.132	10.969		-1.471	.142
	PE	-23.707	2.190	-.482	-10.826	.000
	THH	17.071	2.776	.362	6.149	.000
	TI	9.725	2.183	.229	4.455	.000
	ESI	5.482	1.708	.153	3.209	.001

a. Dependent Variable: RO

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.639 ^a	.408	.400	21.909

a. Predictors: (Constant), FC.EIS.CRRP. CKI, CEE

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	124453.247	5	24890.649	47.304	.000 ^b
	Residual	180482.743	343	526.189		
	Total	304935.990	348			

a. Dependent Variable: CS

b. Predictors: (Constant), FC.EIS.CRRP. CKI, CEE

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.850	10.286		-.277	.782
	FC	2.124	2.635	.046	.806	.421
	EIS	8.867	2.646	.187	3.352	.001
	CRRP	12.361	1.530	.346	8.078	.000
	CKI	13.722	2.063	.395	6.651	.000
	CEE	8.906	2.362	.222	3.771	.000

a. Dependent Variable: CS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.989 ^a	.978	.978	4.436

a. Predictors: (Constant), CRT, PF, OPT

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	333207.140	3	111069.047	5137.804	.000 ^b
	Residual	7458.189	345	21.618		
	Total	340665.330	348			

a. Dependent Variable: efficiency

b. Predictors: (Constant), CRT, PF, OPT

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.759	.669		-2.629	.009
	CRT	.974	.009	.982	113.119	.000
	PF	.009	.006	.013	1.552	.121
	OPT	.213	.017	.367	12.529	.000

a. Dependent Variable: efficiency