Teacher Attitudes towards Using ICT as an Educational Tool: The Case of Nigerian Secondary School Teachers in the City of Ibadan and Abuja

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ABSTRACT

Education for over two decades has taken a new turn to improve the way instructions are passed to students. Educational improvements has seen the introduction of so many information communications technology tools in education, for which teachers were trained, while some develop themselves to be able to use this tools in the classroom as an educational tool. The significance of this dissertation is solely focused on probing the Nigerian Secondary School teachers' attitude towards using Information and Communication Technology (ICT). This study also looked into the beliefs that concerns teachers' by using ICT as an educational tool and also attitudes based on factors such as age, gender, education (certificate and university training), subject taught and experience level. Data was gathered from 200 participants via use of questionnaires and also interview questions both written and recorded. Analysis was carried out on gathered data using ANOVA, t-test, standard deviations and percentages. Significant differences was also conducted on the variable factors based on the demographic characteristics of each participant.

The findings from this study shows the attitudes of Nigerian secondary school teachers holds towards ICT usage as an educational tool in the classroom were on a high scale and there were significant differences on their attitudes on using ICT as an educational tool based on age, education, experience level, subject taught and also their beliefs based on experience level.

Keywords: Attitude, Education, Information and Communication Technology.

ÖZ

Eğitimi yirmi yılı aşkın bir süredir öğrencilere aktarma yolları konusunda yeni bir döneme girmiştir. Eğitimdeki iyileştirmelerde bir çok bilgi iletişim teknolojileri kullanılmaya başlamiş ve bu amaçla öğretmenlere eğitim verilmekteö kimileri de eğitisel bir araç olarak bunları sınıfta kullanabılmek için kendi kendilerini geliştirmektedirler. Bu çalışmanın odak noktası, Nijerya'daki orta eğitim öğretmenlerinin Bilgi ve İletişim Teknolojileri (BIT) konusudaki tutumlarını ortaya çıkarmaktrıç Ayrıcaö bu çalışmada eğitsel araç olarak BIT kullanan öğretmenlerin yaşö cinsiyet, eğiim, verilen ders ve deneyim sevisyesi gibi faktörlere dayalı olarak inaç ve tutumlarını da incelemiştir. Veriler, sorular açık uçlu ve anket kullanılark 200 katılımcıdan elde edilimiştir. Toplanan veriler ANOVA, t-testö standart sapma ve yüzdelikler kullanılarak analiz edilmiştir. Ayrıca herbir katılımcının özelliklerine dayali değişken faktörler üzerinde anlamlı farklılıklar götlemlenmiştir.

Bu çalışmanın bulgarına göre, Nıjerya Ortaokul öğretmenlerinin BIT'in sınıfta eğitsel bir araç olarak kullanılmasına karsı tutnmları büyük ölçude olumlu olup, yaş, eğitim, deneyim seviyesiö öğretilen derse bağlı olarak bakiş açılarında ve ayrıca deneyim seviyesine bağli olarak da inançlarında önemli faklılıklar götlemlenmiştir.

Anahtar kelimeler: Tutum, Eğitim, Bilgi ve İletişim Teknolojisi

DEDICATION

This work is dedicated to God Almighty who has given me the strength and wisdom to be able to successfully complete this work and also to my parents Bishop A.O Agboola and Evang. V.O Agboola.

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Chapter 1

INTRODUCTION

The acronym ICT stands for Information and Communications Technology and it points to the strategy or technology used to structure information and communication (Bakare, 2014). ICT in its nature is related to Information Technology (IT) which involves the use of electronic technological tools such as projectors, power point's, e-mails, course websites and other communication mediums which are used to disseminate educational information. Education around the globe in current times is moving forward as such that it improves every day and instructional designers are working to make sure the quality of instructions designed is fit enough to cater for educational needs. Furthermore, that education is available for all irrespective of which background a learner comes from. The delivery of instructions is important and necessary, as it's the duty of teachers to deliver the instructions which a learner needs in the best way that teaching outcomes will be achieved (Hooper and Rieber, 1995). It is also important to note that technology has become an important factor in the delivery of educational instructions and also access to educational tools and materials (Syed, 2002). Therefore, it is vital that a teacher have and use all the required skill and tools to deliver educational instructions in a learning environment (Stephen, 2006).

A learning environment refers to the mixture of social and physical standards in which students learn.

It is believed that the use of technology and technological tools will further enhance the productivity of both the learner and teachers with respect to making immense information available (Al-Zaidiyeen et.al, 2010). A lot of countries are already making use of computer education technology in their education system, integrating ICT in their education instructions and also making sure that the teachers in their educational system are well equipped for the task placed in their hands as the importance of teachers cannot be over emphasized, as what a nation will become lies in the hands of the teachers.

The importance of ICT in education needs to be emphasized too as a lot of instructors may want to let their personal impressions get in the way of the improvements that the integration of ICT into education may bring.

Taking insight into usage of ICT tools in a learning environment, they provide convenience to teachers for getting materials to develop their instruction manual without breaking a sweat unlike having to go through the rigorous process of going to the library looking for several books on a particular topic to be thought in the classroom. Moreover, teachers can also gain access to use of online tools such as the Evernote with which they can make videos and make notes available to their student's online thereby making learning without physical appearance possible for students that cannot be present in a physical classroom. Using internet, teachers can make video conference with their students using internet service tools such as skype, Google+, Hangout or any other custom video conferencing softwares or sites. There is a wide range of access to information for teachers to develop sound instruction manuals for their students and also tools to help their development too e.g. Blackboard to develop dynamic and engaging instructional contents for students. A method in which teachers

ask students to complete an assignment and send the answered assignment to an email belonging to a teacher makes it easier to get assignments submitted from the students eliminating the hassle of having to come back checking for an instructor who is not readily available due to some constraints and also eliminating time wasting. With this, while teachers wait on students to submit their assignments online, the teachers can focus on other things like preparing a solution to the assignment given to the students or doing other valuable things with the time available. Teachers can also make professional connections to better hone their skills and transform their student into knowledge constructors which is a more proper profile for the citizen of the information society (Demetriadis et.al 2003).

1.1 General Attitude towards ICT

Attitude is defined as the way teachers accept or reject the idea of teaching and learning with the use of ICT tools in the classroom, while they are preparing instruction which need to be implemented during the course of teaching in the classroom and while they are learning to better equip themselves to bolster delivering better educational instructions to the students in a learning environment. Also attitude cannot be discussed without touching the factors that can impact it such as perception, beliefs, awareness, confidence and competency of teachers about ICT and ICT tools concerning its usage and applications in educational contents (Gulbahar and Guven, 2010; Peng Lin et.al, 2012; Sanchez et.al, 2012; Tezci, 2009; Oladosu, 2012; Kandasamy and Parilah, 2013).

Furthermore, according to Karel Kreijns et.al (2013) attitude is a person's overall feeling of how favorable or unfavorable the result of doing a particular behavior are. The intended result of improving student and teacher productivity cannot be achieved

if the attitude on teachers towards the use of ICT tools is not properly understood before trying to apply any technology.

Attitude has been defined by psychologist and researchers over years, in which a negative attitude is practically a barrier to the integration of ICT with education in the process of teaching and learning (Ajzen, 2005). Omollo et.al also revealed in the study they conducted that teachers had positive attitude towards the usage of ICT tools. Al-Zaidiyeen (2010) pointed out that to have successful utilization of ICT in schools, it's all dependent on the attitude of teachers which is a prime factor, a fact that is also supported by Teo (2008) and Albirini (2004).

Demetriadis et.al (2003) in their works discovered a dissatisfying situation, that teachers in secondary schools do not make successful use of IT for educational purpose. When there is no effective usage of ICT in education, it defeats the expected benefits that the technology can offer. For some teachers, they just use ICT tools for administrative, self-development, class note preparation and student management purposes other than for pedagogical purpose.

The fact that attitude towards a particular technology is deemed to be at a positive level doesn't make the technology to be accepted or used for the purpose of teaching and learning, talk less of constructivism approach in education. Before technology can be accepted, then there must be some certain conditions or factors that will move a teacher to accept the technology and eventually use them.

Hu et.al (2003), using the technology acceptance model (TAM) designed by Davis et.al (1989) in their study stated that except a teacher perceives a particular technology to

be useful, they will not use it. Also that perceived usefulness and perceived ease of use are fundamental determinants in the continuous acceptance of technology. For teachers their primary concern and question is "How will this technology help my teaching practice?", i.e. the issue of job relevance. Which implies that, if technology is perceived to be useful in the classroom, it is as a result of when the teacher beliefs that the technology will help the teacher in teaching and control over dissemination of knowledge (Hassan et.al, 2011; Ayse et.al, 2012), which will also drive the intentions to use technological tools in teaching and learning process.

Mary-Anne et al (2013), stated that broadly speaking wrong idea or perception still hold amongst teachers that computers and internet are the only useful technological tool in the area of education. However, the technologies available today has gone beyond just computers and internet as there are other technological tools available for specific educational purposes and subjects which has proven useful.

Almekhlafi and Almeqdadi (2010), in their study on the perception that teacher holds in integrating technology in classroom in Saudi Arabia, found out that teachers carry the belief that the integration of technology process of learning of the students is an important part of their education. Some teachers also believe that their level of confidence has an effect on their level of use and use of technology.

To have a successful integration and have positive results in the use of ICT tools in the process of teaching and learning through the constructivist model (i.e. allows creativity, freedom to think and afford student centered learning and teaching process) attitudes must be addressed.

In the process of integration, use of technological tools and adaptation of instructional technology to effect the process of instructional development, teaching and learning process, there are certain factors that can affect this process. These factors are not just limited to the teachers as is always a general belief that teachers are the prime factor when it comes to the fact that success of integration is solely dependent on teachers. Some of the factors that affect integration and use of ICT tools range from policies effectuated by the school authorities, educational boards, lack of technological tools and softwares for classroom use, lack of support for teacher professional developments, lack of training, unreliability of hardwares and softwares (Morag & Marie, 2013). Resistance to change (Ertmer, 1999), also affects the integration and use of technology, as some teachers believe that the traditional method of teaching which is teacher-centered oriented is the best and thus believe that the use of technology cannot bring about an effectual results in the whole process of teaching while some may not use technology to optimal potentials (Wolski & Jackson, 1999).

Various other factors such as self-efficacy, competence, facilitating factors and beliefs also affect the integration and use of ICT in education even though technology is needed to be properly embraced as it holds a lot of potentials. Therefore there is a call to better investigate factors that affects technology adaptation in the system of education.

In this study, the focus will be on attitudes and beliefs of Secondary School Teachers in Nigeria on the usage of ICT tools according to their gender, age, education (university and certificate training), certification, experience level, subject taught.

1.2 Problem Statement

For over twenty five years, IT has been introduced into the Nigerian educational system with the goal of integrating it into education, but yet the integration of ICT in education is yet to yield substantial result, even though there have been contributions from both private (organizations, philanthropist and the PTA (parent teachers association)) and the public sector in the country. The effect of the integration of ICT in education has not been felt nor seen vividly to say that the potential of ICT has been tapped into in the education sector of the country. This problem of result not been seen can be attributed to a lot of factors which particularly hinders the potential of ICT to be taken advantage of, leaving the tools available to remain either unused or become unusable. Supporting this, Fakeye (2010), in the study conducted revealed from the results obtained showed that the use of computer by teachers to teach english language in private junior high schools in the city of Ibadan, Oyo state Nigeria is 2.5% which is very low, even though 95% of the teachers agree that using it help correct pronunciation and spellings when they use it. To really tackle the issue and aid proper response, there is need for the probe of factors affecting the effectiveness and use of ICT as an education tool is essential.

This study will further look to understand and shed light on the belief and attitude of the Nigerian secondary school teachers, looking into their behaviors and to provide valuable information for curriculum planners. If teacher's attitude towards ICT tools in education are well understood, knowing how to address any situation that arises, will not prove to be a problem as it will be known of which technology properly suits whichever instruction is to be passed across by teachers.

1.3 Purpose of Study

The essence of this study is to examine what attitudes do teachers exhibit towards the

use of ICT tools in education specifically focusing on teaching and learning by using ICT tools in Nigerian secondary schools.

1.4 Research Questions

The study aim to answer the following question:

a. What attitude do teachers show towards using ICT as an educational tool with respect to age, subject taught, gender, experience level and education?
b. What beliefs do teachers hold concerning using ICT as an educational tools?
c. What are the factors that ignites, impedes technology acceptance and use by teachers?

1.5 Significance of Study

The fast development of technology and the need for equipping students for the challenge ahead, has made it important that teachers need to prepare themselves well. Thus, it is necessary to execute a quantitative and qualitative research (mixed method research) on the attitude that teachers exhibit towards the utilizations of ICT tools in teaching and learning processes. From this research, understanding will be gained concerning the variations in attitude in relation to teachers' age, gender, education (certificate and university training), experience, subject taught and also belief. Also, it will provide intel concerning the utilization of computer in teaching, learning and preparation of instructions and other uses with respect to computer education taken by teachers; factors that allow the use of technology in education and the ones impeding the usage.

1.6 Limitations

The limitation experienced during the course of the study was that some participants were unable to return their filled surveys due to the political and administrative problems that occurred in the education ministry in Nigeria. So, the expected returns were not realized forcing the population to be reduced.

Chapter 2

LITERATURE REVIEW

This chapter will focus on written literature in probing information and statistics on the research study. Furthermore, it will provide a background and validation for further elaboration of knowledge on this study.

For over a few decades education as metamorphosed from just a traditional way of teaching to the point whereby ICT has been involved, and has moved into all facet of society and education inclusive (Syed, 2002). The global adoption of ICT has often be placed on the potential of the new technological tools to remodel an educational system which is obsolescent (Umwin, pg.360 2009). In developing nations specifically, the above theory has brought about a whole set of wild speculations concerning the need of educational changes that will accommodate the new tools (Pelgrum, 2001). Given the importance that has been seen, ICT has an ever growing chances of adding value to education, increasing the potential of students and teachers, cognitively. It also aids improvements and also providing an open platform for successful implementation of instructions in a learning environment. ICT is not just a prime pillar for the information age, but also a paramount driver and tool for encouraging educational improvements that can transform students into productive knowledge workers (Pelgrum, 2001; Bulent Cavas et.al 2009). Looking at the situation it is paramount that before ICT can be applied in education, so many things needs to be looked into, ranging from motivations, policies, infrastructure, teacher attitudes, competences, perception, awareness, beliefs,

background and a host of other related factors that are related to the teachers and the environment where they function (Teo, 2008; Albirini, 2004; Bulent Cavas et.al 2009).

2.1 What is ICT Itself?

According to Placidius Ndibalema (2014), ICT can be said to be technological instruments or setups such as: personal computers, internet and other electronic transmission system such as radios, digital television, and projectors amid many others that secondary school teachers can implement as pedagogical tool.

ICT as a teaching and learning tool is seen as the application of instruments and facilities in teaching and learning processes which entails the using software applications to solve problem and induce the thinking potentials of students, to fashion products or interact and share their ideas with each other (Jonassen, Howland, Marra, &Crissmond, 2002). The characterization and elucidation of ICT as a pedagogical tool refers to cognitivism, in which students are able to think, solve problems and work at their own pace. On the other hand, it is the responsibility of the teachers to obtain information, generate instructions with which student will learn, create solution, analyze, apply teaching techniques and methods and knowledge in teaching and learning process.

It should be observed that, ICT has so much created an avenue by which teachers across the world can help build each other professionally with so many professional hubs available over the internet in which teachers communicate and collaborate to gain ideas to be better equipped professionally and get to know how policies that are made available in such countries their counterparts are.

2.2 ICT Trends in Education

ICT tools often times are available wherever students find themselves in a modern setting or classroom. This tools may include printers, computers, CD-ROM or smartboards etc. Technology offer a great deal of solutions which can make learning easy, harnessing the large volume of information we get and the ones available daily, even though teachers do not utilize technologies in education all the time (Smeets, 2005), one important thing to note is that students are constantly interacting with ICT tools and its' this fact that cannot be overlooked.

Therefore, it is important to bring to light a few important ICTs that are implemented and trending in education for the purpose of learning and teaching. Lately, there have been investigation into the trending technologies applied in educational and pedagogy setting and out of such investigators is Robert (2010) who spelled out ten global trends and innovation in the said environment and setting. Some of this available trends and evolving will be looked into.

2.2.1 Mobile Learning

Speaking of mobile devices, the first thing that comes to mind is mobile phones but its' not limited to smartphones but rather windows surface devices, android tablets, ipads, e-readers e.tc the proliferation of the devices that students and teachers can choose to use to acquire knowledge and data. The advancements in technology and software development has made this devices very much at disposal with the devices made available at varying affordable prices. Currently in the world there are over six billion mobile devices, with more than 7.2 billion mobile lines which is more than the population of humans. Technology as it is experience a surge in development both hardware and software wise. As of now in the software industry of smart devices,

google play store have the largest mobile applications market with over 1.6 million applications; apple store in second with 1.5 million applications, windows store having 385,000 mobile applications which is compatible across all devices on the platform (mobile, computer, tablet and smart watch). There are also others such as the Sailfish which make use of the android applications even though it's not of android in nature but has the adaptability to use android applications and also blackberry and amazon. All this mobile platforms offers applications that are useful to education and provide access to learning instructions which students can make use even while in transit.

The main idea of using a mobile device as an ICT tool in an educational environment as a means of learning and access to education is to provide ways by which students regardless of their location can through their devices have education e.g. a whole textbook can be made into a pdf format and put into a smartphone which can be read while sitting in a bus or train and this same pdf file can be transferred into a tablet device regardless of the platform with the necessary software to make it readable.

One thing that should be put to mind is that education is not limited to a classroom environment as an educational environment can be created virtually and place on a mobile smart device such as an ipad or windows surface device as there are a lot of teaching applications which are virtual and can teach students anything that they desire to learn e.g. there is an application on google store which teaches Turkish language and with the help of the virtual teacher and a perfectly designed application a learner can go from a beginner to a fluent turkish speaker. To cap it all mobile devices are an avid out of school means for a continual process of learning. Also with mobile devices utilizing the internet provided using the GPRS (General Packet Radio Service) and LTE (Long-Term Evolution) data service on a mobile line put in a smart device or

wireless service a learner can gain access to unlimited volume of information to be consumed for learning purpose. Going further, the use of SMS (short message service) like in Nigeria in which mobile telecommunication companies liaised with education resource company to create a platform in which a learner preparing for an exam can gain access to past questions and also gain access to tons of definitions of words and topics as they prepare for their exams even without having access to internet service.

2.2.2 Smartboard

This is an interactive board provides a technology in which a teacher and can interact with electronic board during the process of teaching and learning. This kind of boards are called Interactive White Board (IWF) in educational. This board is a board that can be touched, write on with the use of a special pen which is electronic in nature transferring electromagnetic signals to the computer which the computer then translate whichever necessary action its meant to do. This board itself is a package in whole and in the package it contains a projector, large touch screen display with special function buttons on it and remote control and a computer. Some of this smartboards depending on their configuration has web cameras inbuilt in them. This boards in nature allows input from a user and this boards have educational software installed on them which can be interacted with through finger touches. The board also has preinstalled software that comes along with it which allows the compiling of notes, images, audio and video contents. This board can not only just be used in the teaching and learning process but can also be used for teacher training purposes too.

Some other thing associated with this technology is that it's a very easy and interesting technology to use as it gains the interest of students as they are all encourage to participate in the lesson being taught. There are countries that have been using in the developed countries while developing countries like South Africa have begun trials on

it to see how effective it is in the process of teaching and learning in the classroom with the trials in some of the provinces of the countries and also some private secondary schools in Nigeria are using the technology in the classroom which is yielding encouraging results.

2.2.3 Cloud Computing

Applications today has gone from just being accessible on a stand- alone computer but have now being made possible as such it can be installed on a single computer throughout the internet and accessible worldwide. This technology has made it possible to have several application which could have being a single client machine a service oriented tool which is accessible to all which obviously include educational softwares too i.e. it supports third-party services and create platform which provides virtually distributed IT support and services, which also decrease cost of accessing service that is needed education wise. In the case of developing countries this technology provides a more robust means and support for accessing educational resources and services in more economical way. Nevertheless, for this technology to be accessible it requires internet connectivity and also there are challenges of content filtering, monitoring, privacy, copyrights and secrecy.

2.2.4 Gaming

Games has been around for centuries, but the advent of the creation of digital games opened up a new avenue to the process of teaching and learning. Games in nature require grit, dedication and the ability to think and also get rewards for achievements and completion of tasks. Games are in different types in terms of playing form which can be either online, on social networks or the use of gaming consoles which is connected through the internet or on an intranet network with several computers networked together. The noteworthy feat of games is focused on achievements which

is the prime factor for vigorous involvement, motivations and collaboration, rules, challenge and interaction which actually bolster learning methods or approach rather than decreasing the learning ways available and activate mental and physical interaction with the game. Pedagogical game can efficiently gain the attention of students, develop practical skills, perform educational, psychological or situational role as they gain interest towards such, putting in concentration, effort and focus with the achievements made in this game as rewards which motivates them to try and reach whatever set goals is in the game and thus learning achievements can be made. The Pew Internet and American Life Project in one of their studies discovered that game is mostly played amongst you and its' not just a fun thing but a part of their daily life and also that game has gone beyond fun but has transcend into the educational system. Game is found to have different types of play which are divided into Massively Multiple Online Role Playing Game (MMORPG) and Massive Multiplayer Online Game (MMOG). Game offers a lot of potential which are yet to be fully exploited and one of such is that it improves social collaboration and civic engagement amidst the young persons.

2.2.5 Smart Portfolio Assessment

When the word portfolio comes up, the first thing that rings a bell is the arrangement, gathering, categorization and filing of work that has been done and is to be done. Speaking of smart portfolio assessment it is quite related as it also involves the same but is linked to education. This give teachers the ability to correctly understand gaps in education, transform and modify content and educational technique. The shift in assessments is now gradually shifting from the repeated formative evaluations which makes time to time update on information and less on high-pressured assessment as the value of difference. There has been increase in volume of devices in which students

can preserve their works all together in the form of blogs, wikis, posting tweets, picture, status on facebook and twitter, uploading files and pictures to cloud drives, saving in e-mail drafts which are all in a form of web collections. This will show their works and can also be shared with teachers and peers which can be evaluated.

2.2.6 One-to-One Computing

The technique all across the world in classroom settings which is growing gradually is to create a platform and provide devices that can hold and build educational environment that supports entry into the information world using the information technology tools. For instance a digital assistant like a computer in possession of a student is a great infusion of educational technology. Countries like Uruguay, Mexico, USA and Australia are moving towards this trend and it has been found that this approach is comprehensive. In the said countries its' been found that the approach has made teachers to be closer to students in manner that instead of lecturing like method in teaching they are able to spend time with each student one on one and also the students are able to interact with digital tools such as the personal computer and tablets and also the application installed on the computer which creates a virtual environment for the purpose of learning. The one-on-one computing can also create a whole set of issues like the issue in Uruguay there came a point whereby the students that computers were distributed were all in the country side and were all very young and the exposure they got from the access to information made them developed higher than the level they ought to be as such that they are on page with students who are above their age. Part of this issue is what Roberts (2010) believe

that Uruguay is facing amongst the nation said above is as such that the teachers are up in pace with the rapid developments, capabilities and skills of the students.

2.2.7 Ubiquitous Learning

With the trend across the world showing rapidly developing connectivity set-ups, with computers becoming cheaper with time, there has been efforts from educational institution across the world to make education affordable as such that students can have their education "regardless of where they are". Such technique as this require trials to see how productive it can be by the 40-minutes standard test to see how both students and teachers will fare. For this technique to be effective there needs to be the activation of both hardware and web inputs and also to prepare the virtual teachers (online tutor).Furthermore the opportunity for students and individuals who learn on their on pace to have a deeper experience learning.

2.2.8 Redefinition of Learning Space

This is the reorganizing of teaching and learning environment (Robert, 2010). This focuses more than just on the amount of seats in a teaching and learning environment but rather on creating a space whereby there will be cooperation between students and teachers. This is important as learning space clearly has an effect on learning behavior. Thus in designing a learning space consideration should be given to creating a conducive learning space and also to ask the following question before the design is carried out:

If students are seated in a particular position how will the lighting system affect their visuals? Will the sitting arrangements favor collaboration with the next learner and will they be able to make eye contacts with the chance for a face to face seating? This are just a few of the question that must be considered first before any design should
 be done.

Also to consider other factors, elements and the principles of design that can impact the behavior of the students and components like, technology in place, devices to be used and the temperature of the space (Scott-weber- pg12, 2004; Malcolm and Phillip chp9, 2006).

2.2.9 Teacher Managers/Mentors

On this trend, which is the ninth that Robert (2010) mentioned, he pointed out that when there is a technological change in the classroom and demands have risen or changed as per the teacher, with request for a more personalized training with the need to consider the students as a singular person, considering the teachers own strength and flaws and approach method. The role a teacher plays goes beyond teaching when education is 24hrs a week and beyond a 40-minutes class. In that moment they become instructional managers rather than educators; helping students find personal learning path and proper learning means. In this situation, teachers' role will be to provide a collaborative learning moments for students, providing insight during and outside the class period. This technological change as it is quite easily discussed but the actual practicality is the main issue and thus, the success or failure of this synergy which is to be created is dependent on teachers and the teachers' readiness to or not to venture into unchartered waters.

2.2.10 Teacher-Generated Content

This content focuses on contents which are developed by teachers, and among the founders of this model is MIT who made it available to the world. This trend is being rapidly applied as teachers a taking a more personalized method approach across the world. Schools are increasingly supporting teachers to find better ways of dissemination instruction and also to create and apply contents that they feel is applicable in teaching in the classroom. Teachers also have the liberty to choose and

review, edit and add contents they think will improve learner's knowledge.

2.3 Impact of ICT in Education

The impact of ICT in education is very much found to be profound as they have been found to be handy, captivating and prove interesting to use which makes ICTs vital tools to be integrated into education, affecting the process of teaching and learning (Yusuf, 2005; Syed, 2002). ICTs have been found to be potentially able to accelerate, improve skills, engage and encourage students and also improve learner achievements (Ting, 2005). It has also been found to push for constructivist views and ideas in education, having the ability to support learning online connecting students across the world to a larger content in contrast to traditional educational environment. Modern ICTs provides support for the development of curricula that lays prominence on capabilities and the method of information consumption other than just what the information is (Syed, 2002; Oliver 2000). ICT in its very nature also support and encourage independent learning in which students learn on their own and in the process are deeply immersed in whatever they are studying. In the traditional method of teaching and learning, the development of curricula has always been around by the teacher and the way they deem fit for instruction. ICT brings a kind of flexibility in which students too are involved with the teachers. This feature offered by ICT help to shape how the instructions is to be delivered i.e how the students would prefer instructions to be delivered. It also help the cognitive reasoning of students and provides many chances of learning constructively (Syed, 2002).

Furthermore, ICT has also been found to support collaborative learning amongst not only students but also creating such avenues for teachers using internet-based technology and through social interaction to better equip themselves by sharing

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knowledge, transforming extending gathered via experience together (Paul and Therese, 2007; Shyamal).

2.4 Related Research

In the current age, education is evolving everyday with new field of study arising. It is important to understand the use of ICT tools in education. For it to progress, there needs to be a positive response from teachers in terms of usage to proffer better instructions to students in a learning environment, develop and improve on the readily available ones and also improve on personal skills. Considering how important ICT is in education today, we must understand what happens when the use of ICT is affected. Thus, the need to examine the factors that affects the use of ICT as an educational tool in high school.

Some researchers around the globe have been researching the factors that affect the use of ICT, just as the relationship between the variables in this chapter sub-topic such as competence, attitude and awareness are being examined. Ajzen & Fishbein (2010), explained that attitude is best described as a person's degree of favorableness or unfavorableness with respect to a psychological object (Guoyuan et.al, 2009). They both discovered that it is the controller of the actual behavior of an individual which a conscious or unconscious behavior. Oladosu (2012), in his own findings discovered that attitude is a part of cognitive structure that people use to organize, systemize their experiences and behavior. There are claims by some researcher (Gulbahar et.al; 2008, Fouzieh Sabzian & Gilakjani; 2013, Bulent Cavas et.al; 2009) that there is a connection between attitudes, competence and awareness. Gulbahar (2008) further explained that in the use of ICT as an educational tool, teacher's attitudes are major predictor of the use of new technologies. Albirini (2004)

further stretched the fact that teacher attitudes are a major enabling and disabling factor in the adoption of technology. Therefore, it can be said that attitudes held by instructors either positive or negative has a large effect on the use of ICT as a teaching and learning tool. Looking at the attitude itself, in a situation whereby a positive attitude is not exhibited by teachers, teachers' competence is said to also be an affective variable against the attitude exhibited.

In the research conducted by Palacidus Ndibina (2004), in the questionnaire prepared, it contains a total of 20 questions. In this questionnaire, 10 questions focuses on the attitude that teachers exhibits towards the use of ICT as a pedagogical tool while the remaining half of the questions focuses on the extent of the use of technological tools in pedagogy. The result reveals that teachers do not use digital learning task to enable teaching and educational practice. It also shows in the result that teachers are more positive about their perspective concerning computers and the intention to utilize it than their feelings about the usefulness of computer and their control over it. Furthermore, in his research he pointed out a factor that teachers were reluctant to engage with new technology while others perceive that the use of new approach to teaching might have a negative influence on the examination results of the pupils. Oladosu (2011) stressed that teachers' awareness is solely based on their understanding, appreciation and the recognition of the advantages of ICTs in education and their propensity towards its adoption. He also pointed out that awareness is the pillar supporting the use and productivity of a program. If a teacher is aware of a particular policy, he/she cultivates good attitude which in turn produces productivity. Another important thing that the researcher found out was that to have a successful blending of ICT and new pedagogies it all on the teachers' awareness and attitude

towards new innovations. As regards the study, it was conducted and data was gathered with the use of questionnaire which contains 18 likert questionnaires, with analysis made via descriptive statistics. The study in its later part revealed that teachers were aware of the policies guiding IT in the country, and that ICT has quite a number of advantages which were undeniable but they are unaware of the methodologies of applying ICT in teaching despite the fact that teachers possess the awareness of ICT potentials in education, the problem is that they are not properly informed on how to use this technologies available to them. To cap it all one striking discovery in this study is that the more aware a teacher is about policies and methodologies, the more competent the teacher is.

Oladosu (2012) conducted studies on basic technology teachers to find out their awareness and attitude towards the use of information technology for sustainable development in Lagos state education district I, IV and VI. He stated that contemporary teachers in Nigeria tend be pessimistic in their perception and attitude towards change according to Lawal (2006). Furthermore he stressed the fact that the pessimism can be attributed to the lack of awareness about ICT policies and the valid benefits of ICT as a tool of teaching and learning. Teo (2008) initiated a study to discover the pre-service teacher's attitudes towards computer, made a sample of pre-service teachers and assessed them using a likert questionnaire which includes four factors: affective factor, perceived usefulness, control and the behavioral intention factor. The instrument that was used was a computer attitude scale (CAS) which was developed by Selwyn (1997). The instrument was administered on 139 pre-service teachers. This set of teacher's were enrolled in study of a program at the National Institute of Education and Nanyang Technological

University in Singapore. Amongst 139 pre-service teachers, 102 were enrolled a one year program of Postgraduate Diploma in Education and the second group a set of 37 enrolled in one year Postgraduate Diploma in Education program. Teo (2008) affirmed that the factor that affect the effective use of computers in the classroom are teacher's attitude. He also discovered that regardless of their (pre-service teachers) areas of discipline in what they are studying, they all exhibited positive attitude towards computer and also, due to the environment they find themselves in which computer has been available to them in training and their education, their competence is quite remarkable which is also reflective in their use of computer.

Jegede (2008) in his study, aimed to investigate the nature of relationship between ICT attitudinal construct and use level of Nigeria teachers. In this research, sampled 467 teachers randomly drawn from teacher's training schools for the purpose of this study, of which this sampled teachers were from six states in one geo-political zone out of the six present in the country according to the political zoning in the country. The instrument employed in his study was the use of two research instruments; Teachers Attitudinal Scale and Teacher's Use of ICT were used in gathering applicable data. In the study, Jegede (2008) pointed out in respect to Kenzie et.al (2004) that, the self-efficacy of a teacher predicts computer use, i.e. the competence of a teacher using a computer or ICT tool, will definitely reflect their attitudes towards computer. In the analysis of data, the analysis of variance showed that the merger of attitudinal constructs is notably associated to ICT usage level of teachers. Onasanya; Shehu; Ogunlade; Adefuye (2011), executed a research study on 240 teachers to find out the level of awareness of teachers and the level of use of information and communications technologies. In this study, there was a sampling of

240 teachers comprising of both male and female from one state in the south western zone of Nigeria. The results from the collation of data revealed that male teachers were more computer literate than their female counterparts but in all the male subjects fail in the area of communication. A point was stressed out that generally the level of utilization across both gender is low. A call was made that there should be training and retraining for teacher both pre-service and in-service so as to better have a quality service delivered.

Yusuf et al (2012) in his work looked into the attitude of teachers towards the School ConNet/Multi-Choice Resource center provided at the Upper Basic Schools in Kwara State Nigeria. In the probe, the discovery was that there was positive attitudes from the teachers and there were signals of willingness to use ICT but nevertheless there was low use of the resource that was made available to the high schools in the state region. This actually affirmed the study of Yusuf (2011) that, the fact that there's a positive attitude doesn't necessarily translate into utilization of ICT i.e. their attitudes do not reflect their use of computers or technology in the teaching and process.

In a study conducted by Omoniyi and Quadri (2013) they examined the perceived competence of Nigerian Secondary School teachers in the use of ICT. In this study the instruments used for the enquiry was ICT competence questionnaire (ICTCQ) which was developed by the researchers. Their study reveals that the competence of teachers in the use of ICT is not affected by the teaching experience a teacher possess. In the study, Albion (1999) was cited stating that the self-efficacy of teachers and the ability to work effectively with computers is a noteworthy factor in establishing their way of computer usage. It also affirms what some researchers (Teo, 2008; Oladosu, 2012) have pointed out that the extent of the integration of ICT in their teaching and student

learning is dependent on factors such as knowledge and competence of teachers among several other factors. The researcher pointed out that the competence in ICT can only be affected by the length at which teachers expose themselves (level of awareness) to ample utilization of ICT especially without the school period.

Gilakjani and Leong (2012) initiated an inquest to explore the stance of EFL teachers' in regards computer usage in teaching english language. They both pointed out and affirmed what other researchers above have mentioned that for successful integration of ICT into teaching and learning process, it is dependent on the attitude of the teachers. They both also stated that computer attitudes can be influenced by different variables. They also pointed out that factors such as computer anxiety and liking (Yildirim, 2000), computer knowledge (Mukti, 2000) and some other researchers who also mentioned that certain factors like computer experience (Kumar & Kumar, 2003), training (Tsitouridou and Vryzas, 2003) does influence computer attitudes indeed.

In the study conducted by Badau and Sakiyo (2013), they assessed the competence of teachers in the urban and rural areas in the north-eastern zone of Nigeria to implement ICT curriculum in secondary schools. In the study, the research was conducted to study the teachers in which 1,774 high school ICT teachers participated in. The instrument used was a closed end questionnaire. In the study, their findings revealed that out of the numbers of respondents, 60% were from the urban areas while the remaining 40% were from rural areas of the zone. There was low competence in the awareness of policy of ICT amongst the ICT teachers, low competence in the implementation of ICT curriculum, and low ICT teacher's pedagogy implementation for implementing ICT curriculum in secondary schools. Overall wise, there is a generally a low competence level amongst the ICT teachers in the North Eastern Zone Secondary Schools in

Nigeria. This result on the competence issue further affirmed the results from the study of Omoniyi and Quadri (2013) whose research also revealed a low competence in the technology use of the ICT in teaching.

Ifeoma et.al.(2013) in their research, which aimed to find out the level of awareness of and use of information technology amongst home economic teachers in Anambra state, Nigeria, discovered that there was a low level of awareness and use of ICT amongst the instructors which revealed a reason that there might have been a conception amongst them, that most instructors think of ICT to be a new discipline in education rather than a tool to augment the process of teaching and learning.

In view of the sections above, another variable that has been proven to affect attitude towards using ICT as an educational tool is belief. G. Sang et al (2010) claimed that there is a relationship between the belief and perception of teachers in the use of ICT tools. The objective of the study was to investigate the interaction or interplay between teacher variables and ICT use. In this investigation, a survey was set up to collect information about teacher variables (internal variables (teacher constructivist beliefs, attitude towards computer, motivation and perception of ICT-related policy)). In which 27 primary school proprietors were contacted, with 1000 questionnaires sent out to individual teachers. Out of the sent questionnaires 820 teachers' returned the questionnaire given to them which accounts for 82% in response rate. The research pointed out that the beliefs of teacher does have an effect on the attitudes towards the adoption and use of ICT in education and also the motivation for the adoption of ICT in education is dependent on the perception of the teacher beliefs about the usefulness of technology citing (Davis et.al 1989).

In another study, the use of technology in education is also stated to be affected by the belief teachers have about the perceived usefulness and perceived ease of use of technology (T.Teo; C.B Lee and C.S Chai; 2007). In the study conducted they investigated pre-service teachers' attitudes towards computers and identified the key determinants of computer attitudes exploring two independent variables (perceived usefulness and perceived ease of use), mediating variables (subjective norm, facilitating conditions) and one dependent variable (computer attitude). A total of 239 pre-service teachers enrolled at Singapore's National institute of Education were sampled, with 68% of the initial sample of n=350, accounted for who were solicited to take part in the study with the students chosen from different programs. In the sample, 36.4% were males while females were of 63.6% of the total number of participants. Findings revealed that computer attitudes are determined by the beliefs about perceived usefulness and perceived ease of use, while factors such as subjective norm have both direct and indirect impact on computer attitudes.

Also Mwalongo (2011), implicitly established a connection that exist between belief and perception in a study conducted investigating the perception about perception about use of ICT tools for teaching, personal use, professional development and administration. It was revealed that the teachers perceived ICT tools to be useful not only for making notes, but for teaching, professional development, personal use and this encourages lifelong development but to cap it all, ICT utilization by teachers did not revolutionize the pedagogical practices of teachers but rather in some instance was used to maintain traditional pedagogical practices. In another investigation by Sipila (2014), still on perceptions of teachers about ICT, taking a view at the perception of how ICT is being integrated into teaching and

learning, the digital competence level of teachers and the factors that may affect their the use of ICT in schools. This study had a sample of 292 teachers who were Finnish. Data was gathered using questionnaires which was aimed at teachers in municipal areas. Of the sample N=292, 67% were female while 33% were males. Findings revealed that primary teachers had positive perceptions about students' awareness and possibilities of using ICT, though there was no statistical difference (having Cronbach alpha value of 0.82). Even though the teachers' had a positive perception in competence, utilization of ICT, there is still no strong support for pedagogical use in teaching, most of the teachers use it (ICT) for personal use only.

Yuan and Lee (2012), in their study investigated the perceptions of elementary school teachers on the use of ICT, revealed that the perception of teachers concerning competence of technology integration (in the classroom), teaching assistance and learning had a high level of positivity. It also revealed that if ICT tools being made available to teachers, more yielded positive results in terms of usage that using ICT can better pedagogy practice in the classroom.

Veen (1993) in his study found out the part belief play in the use of information technology (IT) in education. In his study, observations was that teachers, during the period of research basically used technology the way they deem fit, basically out of the belief of what they think students need, method they believe is suitable to pass instructions for the purpose of learning at the times they think is suitable to be done. Though they also use it for personal development and away from school, it is believed by one of the teachers that there's need to exert some certain control on the way they use it and how it is to be used.

Prestridge (2012) examined teachers ICT beliefs and practices to acquire the comprehension of the prerequisite for ICT professional development. The study adopts a mixed method. Data were collected through ICT surveys questionnaire distributed to teachers in 4 catholic schools having a total of 48 participants responded on a 7-point likert scale. Factor analysis was done after four underlying factors were deduced from the questionnaires and were explored respectively. The factors relating to the study were probed through two teachers to a factor respectively while curriculums were collected along with the done interrogations. Results showed that the teachers held positive beliefs about ICT and but differently when it comes to ICT practice in education and also that ICT is a learning tool to boost curriculum acknowledging, and that ICT plays the a role of knowledge construction via collaborative activity and that it also that it also concern real life practices.

Sanchez et.al (2012), made an inquest into the attitude the teachers towards the use of ICT in classroom (looking at their state of mind or their discharge with regards to the technologies at their disposition). In the study data was gathered by sampling n=170 in-service teachers with the range kindergarten – secondary school inclusive. The survey contains 154-items to elaborate the study. Revealed was the preference of the teachers which is internet and the willingness of the teachers to integrate ICT into the curriculum system available.

Tella and Tella et.al (2007), researched to the usage of ICT by secondary school teachers and the implications and in the study findings showed that teachers across the sampled selection (25 privates schools in the City of Ibadan, Oyo state with census of teachers counted at 700 teachers) have a positive perception of ICT as being a useful tool considering the factors involved (perceived usefulness, ease of use etc.) which is

in agreement with the Technology Acceptance Model (TAM) designed by Davis et.al (1989) and making teaching easier to carry out and also helps in their own professional development but expressed that there was lack of access to internet and email. The findings also elaborate the need for technical support which is lacking (Khalid 2009) according to the results from the survey conducted in which the researcher stated providing technical support is important and could better spur the acceptance and improve the competence of teachers in using ICT in education for the purpose of teaching and learning.

Teo and Noyes (2010), also using the TAM, contrast the attitudes of the pre-service teachers from UK and Singapore. Their findings revealed that compared to the teachers from the UK, comparing the perceived usefulness (PU) and perceived ease of usefulness (PEU) between the two countries showed that PU and PEU of the UK sample is higher than that of Singapore given the fact that UK has long been exposed to ICT which has afforded the teachers to be able to use if more effectively while in Singapore the introduction of ICT into the educational system is quite recent (1997) in times.

In this study, teachers' perspectives towards the application of ICT as an educational tool was examined. To examine this attitude, the teachers' positions were examined in relation to age, gender, experience level, education and the duration of time spent in using computers. The belief of teachers in relation to their experience and general beliefs were also examined to better give a clearer picture of teachers' attitude about using ICT tools in pedagogy.

Parilah and Joscyln (2015) in their investigation, discovered that teachers possess a relatively average positive attitudes towards the use of ICT tools. The results from their study pointed out that result is amongst six positive items which ranges between from 66.7% and 46.7% agrees about the use and potential of ICT. The teachers also agreed that using ICT tools will help their work and aid the learning process but in terms of utilization in the process of teaching and learning, the level of agreement is quite low amongst teachers with 56.7% - 93.3%.

Aydin and Chang (2015) probed the pre-service teachers' perception about the integration of ICT in Turkey's teacher education. Their findings revealed that while some teachers had access to ICT, some do not. Some perceive the computer courses available to them insufficient in improving, while some deemed course such as the instructional technology and material development adequate in improving them. Also some teachers a call that there's need for teachers' to be more competent and skillful to be able to put ICT into their practices in the classroom.

Chapter 3

METHODOLOGY

The purpose of this chapter is to have a detailed look into the attitude of teacher's towards ICT as an educational tool.

A case study is having to choose a particular occurrence to study or inquiry into an issue e.g. selecting a group of people to study. Donna (2001) in his work describe case study as the systematic inquiry into an event that is related with the aim of illustrating and elaborating the phenomenon. The specific to be analyzed can vary from just an individual to a group of individuals. This approach is used to show a reflection of what the phenomenon is about and the factors surrounding it and is mostly used sometimes with intent.

In addition, analysis is defined as a concise investigation of a particular element, in this case the probing of a case. In the analysis of data in social science there are different types of case study which are; quantitative analysis, qualitative analysis, meta-analysis and mixed method, but in this matter the affected analysis method which concerns this study will be explained.

3.1 Research Method

In this research, quantitative and qualitative analysis research methods approach were used. The quantitative analysis method targets estimating the catastrophe by producing data which can be transformed into usable statistical data. Survey, is an applied method

which is designed to gather data from a specific population, or a sample, and with the use of questionnaires or interview as survey tools (Bakare, 2014; Robson, 1993). Furthermore, survey as a research tools are used to gather data, demographic data from individuals, professionals specific to fields and organizations such as schools and offices. In the gathering and analyzation of data collected from individuals that participated in a survey, sample survey has proven to be a vital tool. Therefore, quantitative research method is all about, gathering numerical data to a particular factor or phenomenon. This method allows question to be numerically ordered presenting them quantitatively. To gather data, survey questionnaire was administered to randomly selected teachers in private and public secondary schools in the urban areas of Ibadan and Abuja the federal capital territory of Nigeria in 3 local government areas. Furthermore, qualitative analysis as a research method on the other hand, is a method which allows gathering information about individuals by observation, in-depth interviews which are one-one between the interviewer and the interviewee just as the case is in the qualitative side of this study. It also allows focus groups, content analysis, visual methods etc. This method also help to understand how the feelings, experience and thoughts of individuals influences their actions, behaviors and attitude towards a thing (Hennink et.al, 2011). The interview approach also afford greater advantage to inquire into unexpected issues that the questionnaire might have not addressed and to provide a deeper knowledge about the attitude of teachers concerning the utilization of ICT tools for educational purpose.

3.2 Research Group

This study is targeted at the in-service teachers in Nigeria from both public and private secondary schools in the year 2015 across the selected study areas (Ibadan and Abuja) in which cut across teachers teaching in subject areas such as science, commercial, arts,

sports, physical health education and vocational subjects in various schools that were surveyed in the study. In the classes taught by these teachers, each class period last for 50-minutes with a break of 10-minutes while the classes that has double periods has two 50-minutes lesson periods and 10-minutes break in each side of the period.

3.2.1 Sample

In this study, a non-probability sampling technique using the convenience sampling methodology was used for the teachers that were being surveyed in both surveyed areas. This methodology was selected because it allows drawing sample from a wider population easily by sampling participant (teachers) that were available at the point of study in the respective schools that sampling was able to be done. The approach was also used because during the period of this study there were issues going on in the country (lack of salary payment and political issues) which made most teachers in accessible. Cohen; Manion and Morrison (2005) state that to make a sampling in a situation where there is a large pool of potential participant in a survey, not every potential participant can be sampled. Therefore in cases like this, convenience sampling is best chosen and used as the sampling method. Moreover, it is a widely used sampling method in non-randomized trials. Since the study is surveying areas that are geographically dispersed, convenience sampling was selected under the available methods under non-probability sampling as the schools where the teachers were surveyed were also selected from various local government areas that were geographically accessible, selecting the schools that were accessible and available for the study.

The total number of questionnaires that were issued out was 200 copies and were

responded to, but only 194 copies were useable due to the incompleteness. In the questionnaires given out, there was a total of 200 participants in the survey who are all Nigerian teachers who teach in both public and private secondary schools across the survey areas. Also in the interview section, 14 teachers were interviewed with permission for the purpose of this study.

Table 1: Demographics

Item		Frequency	Percentage
Experience	0-15yrs	158	81.4
	16-30yrs	35	18.0
	31-45yrs	1	0.5
Age	25-35yrs	104	53.6
	36-45yrs	75	38.7
	46-55yrs	15	7.7
	> 55yrs	0	0
Gender	male	90	46.4
	female	104	53.6

Table 1, shows the frequency of the experience levels of the teachers in the research sample. The first category of teachers in with experience years of 0-15yrs are the highest in number pulling a 81.4% standing at 158 teachers while the second group with experience level of 16-30yrs ranked second in the percentage list having 18% with a number of 35 teachers. The lowest of all is the experience level of 31-45yrs which has 0.5% with just a single teacher holding that level of years of experience in teaching as of the time this study was conducted.

The table also shows different age groups amongst the teachers whom the research study was conducted on in their various schools. The 25-35yrs age bracket accounts for the largest amount of persons amongst the teachers which has the 104 teachers in number and 53.6% accounting for the highest in percentage. The second highest was

the 36-45yrs age group which has 75 teachers and 38.7% while the lowest was accounted for by the 45-55yrs age group with 15 teachers and 7.7% in the total number of teachers that are in the study.

Furthermore, the table also show the details for gender of the teachers. The gender population revealed that out of the whole 194 teachers, male teachers accounts for a total of 90 in number which represents 46.4% of the whose population while the female teachers were 104 in number, accounting for 54.6% of the whole population of the sampled teachers.

3.3 Data Collection Tool and Techniques

In this study, the instrument used was designed by a conjunction of questions designed by Al-Zaiydeen et.al (2010), Athanassios Jimoyiannis & Vassilis Komis (2007) to evaluate "Teacher Attitudes towards Using ICT as an Educational Tool: The Case of Nigerian Secondary School Teachers.". The instrument used in the survey questionnaire is divided into three parts. The part one, is the demographic sections which contain 8-items (1 - 8) that examines the teachers age range, subject taught, gender, years of service, duration of computer use in a day, duration of computer use in the classroom, if computer related courses were taken during university education and if computer certificate or in-service training were ever taken during their career. Part two: Item 1-32 examines teacher's attitude towards the use of ICT tools in education which contains 15 questions on attitude and 17 questions on belief. This questions on the attitudes of teachers was answered using a 5-point likert-scale in the order as follows: 1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly Agree.

Part 3: this uses the interview method in which 4 questions in total were posed to 14 respondents in which was recorded with permission for use in this study.

Questionnaires were distributed to 200 teachers, 110 in the city of Ibadan and Abuja the Federal capital territory of Nigeria, while the questionnaires were later collected after 4-weeks which was done one after the other depending on the location of the schools in this regions of the cities. The investigator (researcher) carefully avoided complex questions that teachers may not under want to answer by phrasing them in a way that their attention can be gained.

The sample size (N) is significant in order to attain credibility. Since this study uses convenience sampling method, the number of the useable received data from the survey participants out of the 200 filled surveys which were returned which is 194, serves as the sample size i.e. n=194.

3.4 Method of Analysis

In this study, the data analysis involved for assessing the survey for completeness and perfection, organizing and loading data into a database Statistical Package for Social Science version 22 (SPSS v.22.0) and also performance of an analysis of description according to the frequency distributions and the descriptive statistics. The descriptive statistics and frequency tables are built to display the outcome with respect to each of the research questions. To examine the relationship between teachers and their attitudes towards the use of ICT tools in education, t-test, percentages, standard deviations and ANOVA was used in the study.

Chapter 4

FINDINGS AND DISCUSSIONS

In this part of this research, the focus on the findings, analyzing and the interpretations of data gathered for probing of teachers attitude towards the use of ICT as an educational tool: Nigerian Secondary School Teachers and to ascertain their beliefs, relationship or if there is any relationship between and amongst the teachers according to subject taught, education (certificate and university training), age, experience-level, gender and the factors that ignites and impede teachers use of ICT in education.

4.1 Attitudes towards using ICT as an Educational Tool

In this section, all the attitudes exhibited by teachers are analyzed according to all the factors stated above.

4.1.1 Attitudes of Nigerian Secondary School Teachers Towards Using ICT as an Educational Tool According to Age

In this part of the analysis, Nigerian teachers' perspective towards the utilization of ICT as an educational tool is being examined according to age.

The table 2, analyses the attitude of Nigerian secondary school teachers attitude towards using ICT as an educational tool according to age and the relationship between the age ranges concerning the utilization of ICT tools in teaching.

Table 2: Teachers' attitudes according to age

N	Attitude	Age	Mean	Std. Deviation	Significant Difference
Q1	Computer would help me organize my work	25-35 36-45 46 and above	4.63 4.55 4.47	0.561 0.643 0.834	0.530
Q2	Using computer would make subject matter more interesting	25-35 36-45 46 and above	4.47 4.32 4.20	0.623 0.701 0.862	0.175
Q3	Computer save time and effort	25-35 36-45 46 and above	4.52 4.55 4.33	0.638 0.599 0.900	0.048
Q4	Using computer is enjoyable	25-35 36-45 46 and above	4.45 4.43 4.00	0.589 0.640 1.134	0.868
Q5	Computer make me much more productive	25-35 36-45 46 and above	4.37 4.33 4.27	0.698 0.723 0.799	0.941
Q6	Teaching with computer offers real advantage	25-35 36-45 46 and above	4.40 4.40 4.33	0.631 0.788 1.113	0.857
Q7	Computers have proved to be effective learning tools.	25-35 36-45 46 and above	4.43 4.49 4.47	0.707 0.742 0.743	0.123
Q8	Computer would enhance students learning	25-35 36-45 46 and above	4.46 4.24 4.53	0.762 0.803 0.640	0.664
Q9	I would rather do things by hand than with a computer.	25-35 36-45 46 and above	2.50 2.53 2.20	1.329 1.319 1.146	0.027
Q10	Computer will improve education	25-35 36-45 46 and above	4.57 4.24 4.40	0.619 0.970 0.910	0.021
Q11	Computer do not scare me at all	25-35 36-45 46 and above	4.13 4.15 3.47	0.871 0.833 1.246	0.426
Q12	I do not like talking with others about computers.	25-35 36-45 46 and above	2.42 2.19 2.40	1.220 1.182 1.298	0.491
Q13	I like to use computer in teaching.	25-35 36-45 46 and above	3.93 3.84 3.60	1.054 0.987 1.298	0.491
Q14	Computers are fast means of getting information	25-35 36-45 46 and above	4.58 4.76 4.47	0.784 0.541 1.125	0.167
Q15	I would like to learn more about computers.	25-35 36-45 46 and above	4.31 4.28 3.80	0.882 0.708 1.320	0.101

Significant point = ***p<0.05,** Group Average mean =**2.25,** Rating Scale**:** Strongly Agree*****, Agree*****, Neutral*****, Disagree*****, Strongly Disagree*****, years

Table 2, shows the attitude relationship within the age groups as per the use of ICT tools. Fifteen questions covers the attitude on the use of ICT tools as a dependent factor on teachers age differences in relation to attitude on the usage of ICT tools. Q3, Q9 and Q10 all possess significant differences of 0.048, 0.027, 0.021 respectively which is lower than the P value of <0.05, which is the significant point that is set for this study. This three questions mentioned above covers about 20% of the total questions which covers the area of attitudes exhibited by teachers on the issue of using ICT as an educational tool. This means that there is a significant difference in the attitudes shown towards using ICT as educational tools and the potentials that the questions expressed about computers. The 80% of the questions which is the remaining questions did not show any significant difference in attitudes that teachers' exhibit towards using ICT as an educational tool as their significant difference exceeds the value of P<0.05.

The average mean (X= $\sum$X/N) for of the age groups is 2.25 and the standard deviation is less than 1 at Q1, Q2, Q3, Q5, Q7, Q8 and Q9 which proves that there is a cluster mean at a point within the range while the rest were more than 1 at a point which shows that they are randomly distributed at that point and are all together within the range of the average mean. This proves that there exist a fairly strong relationship on various attitude of teachers within different age group.

> Teacher A, stated when asked about her experience with the use of ICT tools stated that It makes her work easy and she is encouraged to use it more.

> Teacher G, said that Computers are good but she doesn't think it's going to help her in teaching or make her work easier.

In the study conducted by Prahalad & Srivinas (2006), results showed that teacher's attitude when analyzed has a mean score of 8.90 which ranks second amongst other factors that were considered in their study revealing that the teachers generally have a positive attitude towards using computers. This also shows support for the validity of the affirmation on teachers' attitude. To further prove the trueness of this result, Bulent Cavas et.al (2009) revealed that young Turkish teachers between ages 20-30 held more positive attitudes and significantly differs than teachers in other groups which proves that age can also be an attitude defining factor.

4.1.2 Attitudes of Nigerian Secondary School Teachers Towards Using ICT as an Educational Tool According to Experience Level

The table 3, analyses the attitude of Nigerian secondary school teachers attitude towards using ICT as an educational tool according to experience level and the relationship between the experience levels and the attitude towards use of ICT tools in teaching.

Table 3: Teachers' attitudes according to Experience level

N	Attitude	Experience Level	Mean	Std. Deviation	Significant Difference
Q1	Computer would help me organize my work	0-15yrs 16-30yrs 31-45yrs	4.61 4.51 3.00	0.585 0.702 0.000	**0.025**
Q 2	Using computer would make subject matter more interesting	0-15yrs 16-30yrs 31-45yrs	4.47 4.06 3.00	0.605 0.838 0.000	**0.000**
Q 3	Computer save time and effort	0-15yrs 16-30yrs 31-45yrs	4.56 4.34 3.00	0.602 0.765 0.000	**0.011**
Q 4	Using computer is enjoyable	0-15yrs 16-30yrs 31-45yrs	4.46 4.23 3.00	0.604 0.877 0.000	**0.020**
Q 5	Computer make me much more productive	0-15yrs 16-30yrs 31-45yrs	4.36 4.31 3.00	0.716 0.676 0.000	0.157
Q 6	Teaching with computer offers real advantage	0-15yrs 16-30yrs 31-45yrs	4.45 4.20 3.00	0.673 0.933 0.000	**0.031**

Q 7	Computers have proved to be effective learning tools.	0-15yrs 16-30yrs 31-45yrs	4.48 4.40 3.00	0.702 0.775 0.000	0.106
Q 8	Computer would enhance students learning	0-15yrs 16-30yrs 31-45yrs	4.44 4.14 3.00	0.727 0.912 0.000	**0.023**
Q 9	I would rather do things by hand than with a computer.	0-15yrs 16-30yrs 31-45yrs	2.44 2.69 3.00	1.294 1.388 0.000	0.568
Q 10	Computer will improve education	0-15yrs 16-30yrs 31-45yrs	4.49 4.17 3.00	0.729 1.043 0.000	**0.020**
Q 11	Computer do not scare me at all	0-15yrs 16-30yrs 31-45yrs	4.15 3.86 3.00	0.866 1.033 0.000	0.112
Q 12	I do not like talking with others about computers.	0-15yrs 16-30yrs 31-45yrs	2.35 2.23 3.00	1.241 1.087 0.000	0.748
Q 13	I like to use computer in teaching.	0-15yrs 16-30yrs 31-45yrs	3.91 3.74 3.00	1.045 1.067 0.000	0.503
Q14	Computers are fast means of getting information	0-15yrs 16-30yrs 31-45yrs	4.67 4.54 3.00	0.681 0.919 0.000	0.053
Q 15	I would like to learn more about computers.	0-15yrs 16-30yrs 31-45yrs	4.27 4.23 3.00	0.849 0.942 0.000	**0.337**

Significant point = ***p<0.05** Group Average mean = **3.45,** Rating Scale**:** Strongly Agree*****, Agree*****, Neutral*****, Disagree*****, Strongly Disagree***,** years

The Table 3 above, shows the relationship between the teaching experience levels in years, in relation to the attitude that is exhibited by the teachers towards the use of computers analyzing their attitude towards using ICT as an educational tool. The table shows that there are significant differences which proves to be lower than the value of $P<0.05$ at Q1, Q2, Q3, Q4, Q6, Q8, Q10, Q15. This questions constitute 46.66% of the total questions in the attitudes questionnaires which is a total of 15 questions while the relatively positive attitudes were 8 in number and is 53.34% of the total question.

Teacher C, stated that "The fact that I am well experienced in the field of teaching does not guarantee that I will use ICT tools in teaching. The use of ICT tools in teaching depends on me and my willingness".

Teacher E, said "If a teacher does not have the experience in using ICT tools in the process of teaching, then it will be difficult for him or her, perhaps even

decide not to use it; but generally speaking the teaching experience alone cannot guarantee use of ICT tools in education".

Mumtaz (2000), while stating factors that impedes the use of technology by teachers listed experience as one of the factors in his study. He revealed that if a teacher with all their years of teaching do not have the experience of using technology, it can impede the use of technology in the classroom. Thus it can be said that the lack of experience in using technology in the classroom or personally by a teacher will make a teachers attitude towards technology negative.

4.1.3 Attitudes of Nigerian Secondary School Teachers Towards Using ICT as an Educational Tool According to Education

The Table 4, analyses the attitude of Nigerian secondary school teachers attitude towards using ICT as an educational tool in respect of the education they possess (certificate training and university training) concerning the use of ICT tools in teaching.

Table 4: Teachers' attitudes according to education

N	Attitude	University Training	Mean	Std. Dev.	Sig. Diff	Certificate Training	Mean	Std. Dev.	Sig. Diff
1	Computer would help me organize my work	Yes No	4.65 4.33	0.567 0.721	**0.003**	Yes No	4.63 4.38	0.591 0.681	**0.025**
2	Using computer would make subject matter more interesting.	Yes No	4.47 4.12	0.619 0.803	**0.003**	Yes No	4.49 3.97	0.616 0.763	**0.000**
3	Computer save time and effort	Yes No	4.53 4.48	0.640 0.671	0.657	Yes No	4.53 4.46	0.636 0.691	0.559
4	Using computer is enjoyable	Yes No	4.44 4.29	0.638 0.774	0.185	Yes No	4.48 4.08	0.626 0.759	**0.001**
5	Computer make me much more productive	Yes No	4.34 4.36	0.701 0.759	0.904	Yes No	4.35 4.32	0.715 0.709	0.842
6	Teaching with computer offers real advantage	Yes No	4.38 4.48	0.762 0.634	0.431	Yes No	4.39 4.43	0.765 0.603	0.745
7	Computers have proved to be effective learning tools.	Yes No	4.49 4.36	0.671 0.879	0.303	Yes No	4.47 4.41	0.730 0.686	0.618
8	Computer would enhance students learning	Yes No	4.41 4.29	0.722 0.944	0.367	Yes No	4.43 4.19	0.700 1.023	0.093

9	I would rather do things by hand than with a computer.	Yes No	2.57 2.19	1.279 1.383	0.094	Yes No	2.45 2.68	1.258 1.510	0.338
10	Computer will improve education	Yes No	4.38 4.60	0.861 0.544	0.129	Yes No	4.46 4.30	0.812 0.777	0.275
11	Computer do not scare me at all	Yes No	4.10 4.05	0.852 1.081	0.747	Yes No	4.08 4.11	0.877 1.022	0.879
12	I do not like talking with others about computers.	Yes No	2.38 2.14	1.234 1.117	0.259	Yes No	2.43 1.92	1.215 1.115	**0.021**
13	I like to use computer in teaching.	Yes No	3.90 3.76	0.988 1.246	0.447	Yes No	3.97 3.43	0.967 1.259	**0.004**
14	Computers are fast means of getting information	Yes No	4.56 4.93	0.795 0.342	**0.005**	Yes No	4.62 4.70	0.771 0.571	0.561
15	I would like to learn more about computers.	Yes No	4.22 4.38	0.863 0.882	0.299	Yes No	4.24 4.32	0.909 0.669	0.605

Significant point = ***p<0.05** Average mean of University Training = **3.39,** Average mean of Certificate Training = **2.71,** Rating Scale**:** Strongly Agree*****, Agree*****, Neutral*****, Disagree*****, Strongly Disagree*****

The Table 4 above, shows the effect of the education that teachers possessed on their attitude, both their university training education and certificate trainings which they have and might have been obtained outside the circle of their main teacher education or perhaps a college prior to their teaching careers and during the period. Given that the P value is set at P<0.05 the university and certificate training both show significant differences at Q1, Q2 which proves a very strong point that regardless of the knowledge possessed by the teachers in respect of ICT, it still does not guarantee that teachers will see ICT tools as potential element to bolster instruction delivery in any way whatsoever. This is proven by the significant values on Q1 which stands at 0.003 and 0.025 while on Q2 the values stands at 0.003 and 0.000 which are the most significant difference. Significant difference also exist regarding certificate education on Q4, Q12, and Q13 while university training difference is at Q14. The percentage of the significant difference of the relationship between attitude and university training stands at 20% of the whole question while that of certificate training stands at 33.33% of the total questions which is 3 and 5 questions out of the whole 15 questions on attitude. This all shows a very vivid significant difference on P. Nevertheless teachers still hold a positive attitude towards ICT as educational tool.

Teacher H said Even though i have a good knowledge of computer, i still don't think I need to use computers in the classroom to teach my student before they understand what I am teaching.

This findings proves Cox et.al (1999) theory of planned behavior that a teachers' use of ICT in teaching will be influenced by the personality trait of an individual teacher. Thus it can be said that its dependent on what the teacher feels is right for the situation.

4.1.4 Attitudes of Nigerian Secondary School Teachers Towards Using ICT as an Educational Tool According to Gender

The table below elaborates on how attitude towards using ICT in education may be affected by gender factor.

Table 5: Teachers' attitudes according to gender factor

N	Attitude	Gender	Mean	Std. Deviation	Significant Difference
Q1	Computer would help me organize my work	Male Female	4.59 4.58	0.616 0.618	0.722
Q2	Using computer would make subject matter more interesting	Male Female	4.41 4.38	0.598 0.740	0.109
Q 3	Computer save time and effort	Male Female	4.57 4.47	0.601 0.682	0.248
Q 4	Using computer is enjoyable	Male Female	4.48 4.35	0.565 0.747	**0.039**
Q 5	Computer make me much more productive	Male Female	4.34 4.35	0.639 0.773	0.096
Q 6	Teaching with computer offers real advantage	Male Female	4.41 4.38	0.733 0.741	0.892
Q 7	Computers have proved to be effective learning tools.	Male Female	4.49 4.43	0.640 0.785	0.169
Q 8	Computer would enhance students learning	Male Female	4.36 4.40	0.692 0.842	0.110
Q 9	I would rather do things by hand than with a computer.	Male Female	2.44 2.53	1.282 1.336	0.727
Q10	Computer will improve education	Male Female	4.44 4.41	0.721 0.877	0.303
Q11	Computer do not scare me at all	Male Female	4.10 4.08	0.835 0.962	0.570
Q12	I do not like talking with others about computers.	Male Female	2.32 2.34	1.225 1.204	0.998

Q13	I like to use computer in teaching.	Male	3.90	0.887	0.120
		Female	3.85	1.172	
Q14	Computers are fast means of getting information	Male	4.72	0.541	**0.009**
		Female	4.57	0.868	
Q15	I would like to learn more about computers.	Male	4.32	0.700	**0.027**
		Female	4.20	0.989	

Significant point = ***p<0.05**, Average mean of male = **3.52**, Average mean of female = **3.46,** Rating Scale**::** Strongly Agree*****, Agree*****, Neutral*****, Disagree*****, Strongly Disagree***,** gender

The table above shows the relationship between the attitude teachers' exhibit and their gender difference effect on their attitude. The table shows that the significant difference falls below the set value of P<0.05 which is quite low and most visible at Q4, Q14, and Q15. This particularly shows both male and female teachers see the use of ICT as an important tool, but nevertheless they all exhibit strong attitudes. That said, it shows no real readiness and willingness to embrace the concept of certain using ICT as an educational tool. It can be said that their use of ICT tools is or will be practically conditional. The result also showed that at a point significance was exceeded on the rest of the questions (Q1, Q2, Q3, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13) They also value the importance of information sharing amongst themselves to further bolster their knowledge given that the current state of education and teaching constantly involves the need to properly evolve the delivery of instructions and learning processes. Therefore, it can be said that both male and female teachers possess a string attitude towards the use of ICT as an educational tool. The mean average also shows that the male teachers show a more strongly positive attitude towards using ICT as an educational tool give that the average mean for male teachers is 1.7% higher than their female counterparts. Therefore, it can be said there exists no significant difference between both male and female teachers.

> Teacher K who teaches in a private secondary school said: I love to use computers but sometimes I feel my students know more than me, so instead of

not using it, I would rather meet someone who knows it more to learn about its use so I can be effective in the classroom not looking at the fact maybe i am a woman or not.

Bulent Cavas at.al (2009), in a similar probe found out that the attitude exhibited by female and male teachers shows now significant on the use of ICT as an educational tool which implies that gender has no significant difference in attitude.

4.1.5 Attitudes of Nigerian Secondary School teachers Towards Using ICT as an Educational Tool According to Subject Taught

The table below shows the relationship between the attitude exhibited by teachers and the subjects that they teach in secondary schools.

Table 6: Teachers' attitudes according to subject taught.

N	Attitude	Subject Taught	Mean	Std. Deviation	Significant Difference
Q1	Computer would help me organize my work	Science Subjects Commercial Subjects Art Subjects Sport Physical Health Edu. Vocational Subjects	4.70 4.54 4.41 4.50 4.73 4.00	0.571 0.693 0.643 0.527 0.458 0.816	**0.030**
Q2	Using computer would make subject matter more interesting	Science Subjects Commercial Subjects Art Subjects Sport Physical Health Edu. Vocational Subjects	4.47 4.36 4.37 4.30 4.20 4.25	0.606 0.826 0.782 0.483 0.561 0.500	0.741
Q3	Computer save time and effort	Science Subjects Commercial Subjects Art Subjects Sport Physical Health Edu. Vocational Subjects	4.52 4.50 4.51 4.80 4.47 4.00	0.643 0.793 0.617 0.422 0.640 0.000	0.469
Q4	Using computer is enjoyable	Science Subjects Commercial Subjects Art Subjects Sport Physical Health Edu. Vocational Subjects	4.56 4.18 4.35 4.30 4.33 4.00	0.544 0.945 0.723 0.675 0.488 0.000	0.075
Q5	Computer make me much more productive	Science Subjects Commercial Subjects Art Subjects Sport Physical Health Edu. Vocational Subjects	4.44 4.04 4.47 4.30 4.13 3.75	0.709 0.793 0.680 0.483 0.640 0.500	**0.025**

Q6	Teaching with computer offers real advantage	Science Subjects	4.40	0.709	0.480
		Commercial Subjects	4.36	0.793	
		Art Subjects	4.51	0.680	
		Sport	4.50	0.483	
		Physical Health Edu.	4.13	0.640	
		Vocational Subjects	3.75	0.500	
Q7	Computers have proved to be effective learning tools.	Science Subjects	4.41	0.670	0.634
		Commercial Subjects	4.50	0.911	
		Art Subjects	4.57	0.649	
		Sport	4.50	0.527	
		Physical Health Edu.	4.40	1.060	
		Vocational Subjects	4.00	0.816	
Q8	Computer would enhance students learning	Science Subjects	4.43	0.737	0.873
		Commercial Subjects	4.32	0.962	
		Art Subjects	4.39	0.612	
		Sport	4.40	0.527	
		Physical Health Edu.	4.27	0.507	
		Vocational Subjects	4.00	0.816	
Q9	I would rather do things by hand than with a computer.	Science Subjects	2.32	1.199	0.352
		Commercial Subjects	2.54	1.170	
		Art Subjects	2.57	1.555	
		Sport	2.60	1.430	
		Physical Health Edu.	3.13	1.125	
		Vocational Subjects	2.25	1.500	
Q10	Computer will improve education	Science Subjects	4.45	0.741	0.656
		Commercial Subjects	4.36	0.780	
		Art Subjects	4.53	0.868	
		Sport	4.40	0.516	
		Physical Health Edu.	4.13	1.187	
		Vocational Subjects	4.25	0.500	
Q11	Computer do not scare me at all	Science Subjects	4.17	0.820	0.095
		Commercial Subjects	3.89	0.994	
		Art Subjects	4.16	0.921	
		Sport	4.40	0.699	
		Physical Health Edu.	3.73	0.704	
		Vocational Subjects	3.25	2.062	
Q12	I do not like talking with others about computers.	Science Subjects	2.10	1.051	0.132
		Commercial Subjects	2.57	1.425	
		Art Subjects	2.53	1.356	
		Sport	2.10	1.370	
		Physical Health Edu.	2.47	0.990	
		Vocational Subjects	3.25	0.500	
Q13	I like to use computer in teaching.	Science Subjects	3.95	0.909	0.184
		Commercial Subjects	3.96	0.962	
		Art Subjects	3.71	1.369	
		Sport	4.40	0.699	
		Physical Health Edu.	3.40	0.910	
		Vocational Subjects	3.75	0.500	
Q14	Computers are fast means of getting information	Science Subjects	4.67	0.656	0.287
		Commercial Subjects	4.61	0.875	
		Art Subjects	4.71	0.540	
		Sport	4.70	0.483	
		Physical Health Edu.	4.20	1.373	
		Vocational Subjects	4.75	0.500	
Q15	I would like to learn more about computers.	Science Subjects	4.31	0.793	**0.022**
		Commercial Subjects	4.18	0.863	
		Art Subjects	4.47	0.680	
		Sport	3.80	1.135	

		Physical Health Edu.	4.00	1.309	
		Vocational Subjects	3.25	0.957	

Significant point = ***p<0.05**, Science subjects average mean= **3.40**, Commercial subjects average mean= **3.57,** Art subjects average mean= **3.62**, Sport Average mean= **3.45**, Physical Health Education average mean = **3.62**, vocational subjects average mean= **3.25**, Rating Scale**:** Strongly Agree*****, Agree*****, Neutral*****, Disagree*****, Strongly Disagree*****

The Table 6, above, shows the attitude that teachers exhibited while teaching the subjects above in the table above. The table shows the mean averages of each subject that the teachers in each of the subject categories teaches and their average mean. In table, the table shows that PHE (physical health education) and art teachers possess the highest average mean on the attitudes, which reflects that they possess the most positive attitudes towards using ICT as an educational tool. Despite the fact that the filing or creating of portfolios using computer offers a great advantage in this current age, as such that portfolios created can be uploaded to the cloud using the internet. There exist a significant difference in the attitude that teachers possess. This is reflected on Q1 where the significant difference shows the value 0.03 of Q1 is less than P<0.05**.** The significant difference is not only reflected on Q1 but also can be seen on Q5 and Q15 which possess a significant difference value of 0.025 and 0.022 respectively all lower than the P value. The attitude reflected here showed that teachers with respect to this behavior still have the idea that traditional method of teaching is the best for them not thinking that using computers can make them any better in their functions, nor do they want to learn more about computers with respect to delivery of instructions in the subjects they teach. Overall teachers exhibit a positive attitude.

> Teacher D when questioned about using ICT said I don't think there's any more thing to learn in the use of computer, i feel i have sufficient knowledge of computer use.

4.2 General Teachers' Attitudes Towards Using ICT as an Educational Tool

The table below shows the analysis of the general attitude of teachers toward using ICT as educational tool.

Table 7: Teachers' general attitudes

N	Attitudes	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Mean
		n	%	n	%	n	%	n	%	n	%	
Q1	Computer would help me organize my work	128	64.4	58	29.9	10	5.2	1	0.5	0	0.00	4.58
Q 2	Using computer would make subject matter more interesting	94	48.5	85	43.8	12	6.2	3	1.5	0	0.00	4.93
Q 3	Computer save time and effort	114	58.8	68	35.1	10	5.2	2	1.0	0	0.00	4.52
Q 4	Using computer is enjoyable	96	49.5	83	42.8	14	7.2	0	0.00	1	0.5	4.41
Q 5	Computer make me much more productive	91	46.9	82	42.3	18	9.3	3	1.5	0	0.00	4.35
Q 6	Teaching with computer offers real advantage	97	50.0	78	40.2	16	8.2	1	0.5	2	1.0	4.40
Q 7	Computers have proved to be effective learning tools.	109	56.2	70	36.1	11	5.7	3	1.5	1	0.5	4.46
Q 8	Computer would enhance students learning	99	51.0	77	39.7	14	7.2	1	0.5	3	1.5	4.38
Q 9	I would rather do things by hand than with a computer.	19	9.8	22	11.3	56	28.9	35	18.0	62	32.0	2.49
Q 10	Computer will improve education	109	56.2	68	35.1	12	6.2	1	0.5	4	2.1	4.43
Q 11	Computer do not scare me at all	71	36.6	78	40.2	34	17.5	8	4.1	2	1.0	4.09
Q 12	I do not like talking with others about computers.	15	7.7	13	6.7	55	28.4	49	25.3	62	32.0	2.33
Q 13	I like to use computer in teaching.	61	31.4	71	36.6	48	24.7	4	2.1	10	5.2	3.87
Q 14	Computers are fast means of getting information	143	73.7	40	20.6	6	3.1	2	1.0	3	1.5	4.64
Q 15	I would like to learn more about computers.	85	43.8	88	45.4	12	6.2	4	2.1	5	2.6	4.26

*n=194, *%=100, *Average mean= 3.63, Rating Scale: Strongly Agree*, Agree*, Neutral*, Disagree*, Strongly Disagree*

The table above shows the attitude of teachers' in using ICT as an educational tool in secondary schools. The maximum point 75 and minimum point is 35. From the above table it can be comprehended that more than 70% of the responses from the teachers fall in between strongly agree and agree. This shows that there is a positive attitude towards using ICT as an educational tool by teachers teaching in the secondary schools.

The table, also have an average mean of 3.63, and it's evident comparing the individual means to the average mean that 86.66% of the whole attitude items are well above the average mean and there shows the great importance of ICT tools in education.

When some of the teachers interviewed were been questioned concerning their experiences to understand their attitudes some replied as below:

> Teacher X replied: ICT is very important and we need to use it, especially to train this student because when they are to go into the university they will need the knowledge of using computer and even when they need to write Jamb exam.

> Teacher Y replied ICT helps the student to see and understand you are teaching them. It also makes teaching and learning easier.

> Teacher Z replied, given the current trend, ICT is very important, especially in education and communication.

4.3 Teachers Beliefs

This section here examines all the beliefs that teachers hold concerning the use of ICT in education.

4.3.1 General Teachers Beliefs Concerning Using ICT as an Educational Tool According to Experience Level

The table 8, below shows and analyses the belief that teachers holds concerning the use of ICT as an educational tool in relation to their experience level.

Table 8: Beliefs according to experience level

N	Belief	Experience Level	Mean	Std. Deviation	Significant Difference
Q16	ICT can be a tool for instruction and learning for every subject matter in the curriculum	0-15yrs 16-30yrs 31-45yrs	4.02 3.80 1.00	0.941 0.868 0.000	**0.003**
Q17	I believe that ICT is useful only for administration and teacher's work preparation (exams, test, etc.)	0-15yrs 16-30yrs 31-45yrs	2.87 3.23 3.00	1.307 1.395 0.000	0.345
Q18	I believe ICT can help student in critical thinking.	0-15yrs 16-30yrs 31-45yrs	4.15 4.06 3.00	1.376 1.218 0.000	0.521
Q19	ICT is impressive but cannot contribute substantially to teaching and learning.	0-15yrs 16-30yrs 31-45yrs	2.48 2.40 3.00	1.376 1.218 0.000	0.879
Q20	I believe ICT cannot contribute to learning because it do not activate students.	0-15yrs 16-30yrs 31-45yrs	2.18 2.20 3.00	1.241 1.279 0.000	0.808
Q21	I need more reasons to be convinced about ICT usefulness in the educational process.	0-15yrs 16-30yrs 31-45yrs	3.02 2.80 3.00	1.342 1.279 0.000	0.679
Q22	I believe that I will not be able to use ICT effectively in my job.	0-15yrs 16-30yrs 31-45yrs	2.31 2.43 3.00	1.281 1.220 0.000	0.770
Q23	We have to introduce ICT in schools because it will prevail in future society.	0-15yrs 16-30yrs 31-45yrs	4.17 4.03 3.00	1.095 1.043 0.000	0.451
Q24	I am cautious about ICT use in education, because ICT restrict social interaction and isolates people.	0-15yrs 16-30yrs 31-45yrs	2.74 2.83 3.00	1.355 1.248 0.000	0.924
Q25	I believe that I will not be able to use ICT in my instruction, because I feel insecure about its application in education.	0-15yrs 16-30yrs 31-45yrs	2.41 2.31 3.00	1.312 1.078 0.000	0.829
Q26	I should use ICT in my instruction but I do not know how to organize and manage student learning tasks.	0-15yrs 16-30yrs 31-45yrs	2.76 2.40 3.00	1.313 1.168 0.000	0.321
Q27	I want to use computer in the instruction of my subject matter, but it frightens me that students are more skilled in ICT.	0-15yrs 16-30yrs 31-45yrs	2.63 2.66 3.00	1.338 1.168 0.000	0.956
Q28	I am afraid that ICT will reduce the teacher's role, and this will be negative for children's education.	0-15yrs 16-30yrs 31-45yrs	2.53 2.34 3.00	1.386 1.211 0.000	0.720
Q29	ICT will upgrade teacher's role making it more substantially.	0-15yrs 16-30yrs 31-45yrs	4.05 4.11 3.00	1.002 0.900 0.000	0.529
Q30	I believe that the role of the school will be radically changed in future years because of ICT.	0-15yrs 16-30yrs 31-45yrs	3.94 4.06 3.00	1.096 0.998 0.000	0.574
Q31	I believe that the teacher's will be radically changed in future years because of ICT	0-15yrs 16-30yrs 31-45yrs	4.01 4.00 3.00	1.114 1.057 0.000	0.663
Q32	I believe textbooks' preferential role in education will be replaced by new media based on ICT	0-15yrs 16-30yrs 31-45yrs	3.60 3.43 3.00	1.326 1.539 0.000	0.730

Significant point = ***p<0.05** Group Average mean = **2.58,** Rating Scale**:** Strongly Agree*, Agree*, Neutral*, Disagree*, Strongly Disagree***,** years

The table 8 above, shows the relationship between the experience level of teachers and their beliefs concerning the use of ICT as an educational tool. The table shows that there exist a significant difference, with the only significant difference exhibited Q1 with a value of 0.003 which is lesser than the value of $P<0.05$. This shows that despite the experience that most of this teachers have many still think that the vice-versa of Q1. One thing to also note is that the teachers with the highest number of experience years of 35-45yrs possess the most constant mean of 3.00. This mean average of 2.58 and comparing their standard deviations to the significant difference, the table shows that their standard deviation values all through stand at a constant of 0.000 a value which is also below all the significant values in the table.

> Teacher I, amongst all the teachers said I don't believe that using computers or any ICT tools can be used to teach any subject in the school, but my thinking is that the best way to do things is just the traditional way of things.

Prestridge 2012, stated in her findings that teachers' belief are formed over years of experience which is built upon the timelines throughout the professional contest and a teacher's encounter. The belief that the teachers hold like the teacher above can be said as resistant to change in the way that instructions are delivered. Beliefs as they are, cannot be easily changed.

4.3.2 General Teachers Beliefs on the use of ICT in Education

Table 9, below in this section analyzes the general beliefs held by the teachers on the use of ICT as an educational tool.

Table 9: General beliefs

N	Attitudes	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Mean
		n	%	n	%	n	%	n	%	n	%	
Q16	ICT can be a tool for instruction and learning for every subject matter in the curriculum	58	29.9	91	46.9	31	16.0	8	4.1	6	3.1	3.96
Q17	I believe that ICT is useful only for administration and teacher's work preparation (exams, test, etc.)	30	15.5	40	20.6	44	22.7	47	24.2	33	17.0	2.93
Q18	I believe ICT can help student in critical thinking.	85	43.8	78	40.2	15	7.7	3	1.5	13	6.7	4.13
Q19	ICT is impressive but cannot contribute substantially to teaching and learning.	20	10.3	27	13.9	40	20.6	44	22.7	63	32.5	2.47
Q20	I believe ICT cannot contribute to learning because it do not activate students.	13	6.7	18	9.3	39	20.1	47	24.2	77	39.7	2.19
Q21	I need more reasons to be convinced about ICT usefulness in the educational process.	25	12.9	53	27.3	49	25.3	27	13.9	40	20.6	2.98
Q22	I believe that I will not be able to use ICT effectively in my job.	10	5.2	33	17.0	39	20.1	42	21.6	70	36.1	2.34
Q23	We have to introduce ICT in schools because it will prevail in future society.	88	45.4	74	38.1	15	7.7	5	2.6	12	6.2	4.14
Q24	I am cautious about I70CT use in education, because ICT restrict social interaction and isolates people.	23	11.9	37	19.1	51	26.3	36	18.6	47	24.2	2.76
Q25	I believe that I will not be able to use ICT in my instruction, because I feel insecure about its application in education.	17	8.8	19	9.8	49	25.3	47	24.2	62	32.0	2.39
Q26	I should use ICT in my instruction but I do not know how to organize and manage student learning tasks.	19	9.8	36	18.6	53	27.3	39	20.1	47	24.2	2.70
Q27	I want to use computer in the instruction of my subject matter, but it frightens me that students are more skilled in ICT.	21	10.8	35	18.0	40	20.6	48	24.7	50	25.8	2.63
Q28	I am afraid that ICT will reduce the teacher's role, and this will be negative for children's education.	20	10.3	30	15.5	38	19.6	44	22.7	62	32.0	2.49
Q29	ICT will upgrade teacher's role making it more substantially.	73	37.6	78	40.2	31	16.0	5	2.6	7	3.6	4.06
Q30	I believe that the role of the school will be radically	69	35.6	77	39.7	29	14.9	9	4.6	10	5.2	3.96

	changed in future years because of ICT.										
Q31	I believe that the teacher's will be radically changed in future years because of ICT	71	36.6	85	43.8	18	9.3	7	3.6	13	6.7	4.00
Q32	I believe textbooks' preferential role in education will be replaced by new media based on ICT	62	32.0	55	28.4	32	16.5	21	10.8	24	12.4	3.57

*n=194, *%=100, *Average mean= 3.165, Rating Scale: Strongly Agree*, Agree*, Neutral*, Disagree*, Strongly Disagree*

Table 9, shows the general beliefs that teachers hold concerning the use of ICT tools in pedagogy. The maximum point for table is 81, while the minimum point is 22. From this point it can be understood that most of the teachers responses falls in between strongly agree and agree which shows that they believe that using ICT tools can prove useful. The table has an average mean of 3.16; and it also shows in the table comparing the individual means to the average mean that the most of the mean scores in the table were below the actual mean scores, precisely 64.70% which is 11 items out of all the 17 items related to beliefs. This shows that belief amongst teachers concerning the use and potentials that ICT tend to offer in the area of pedagogy is quite low.

> Teacher J replied: I do not believe I have to use any ICT tool before my student can understand what i am teaching them. If I should use it I think it's going to make them lose concentration in the lesson hour.

> Teacher P also said that: I do not believe that using an ICT tool like computer will make a student learn, I see it as a getaway for students especially the lazy ones. So why should I use it? I believe in the traditional method and that's the most effective way.

Veen (1993) in the study he carried out, that amongst the factors that were observed which affects teachers attitude, he observed the teacher-level factors and amongst it was the teachers' beliefs. The beliefs that teacher holds about curricula which they use was found to be the most important, as this belief is what drives them as to what content of the curriculum should be and the approach they take while teaching. Furthermore,

Albion (1999), also laid emphasis on the importance of teacher beliefs; stating that the decisions that teachers make and the ability to work effectively is largely influenced by the beliefs they hold about the use of computer.

4.4 The Factors that Ignites, Impedes Technology Acceptance and use by Teachers

Even though attitudes have been examined yet there is need to also examine the factors that ignites and impedes the acceptance of technology use by the Nigerian teachers. During the course of the study when teachers were been interviewed,

questions were posed to the teachers to better understand the attitudes they exhibit.

Factors that impedes the acceptance and use of technology

- Lack of awareness

- Lack of experience with ICT

- Lack of teacher development programs

- Lack of incentives

- Student attitudes

- Lack of financial support

- Lack of infrastructures

In the process of the interviews, it was understood that in the use of ICT for them their personal experiences with ICT use matters, as a lack of experience with ICT discourages them to use ICT tools in the classroom. The fact is that these factor impedes the use of ICT in the process of teaching and learning. It impacts the attitude that teachers may show towards the use of ICT in education as such that attitudes become negative.

Teacher L when asked about the experience had with ICT when teaching stated that the reaction you get from students when you teach the students sometimes discourages as a teacher. In terms of using as ICT in pedagogy as some of this students do not know how to use computers even though they own smart devices.

The lack of awareness was also found to be part of the impeding factors, as when the teachers were asked about the awareness of ICT in the process of teaching in the respective city where they teach, they responded by saying:

The level of awareness is very low and therefore most teachers do not know about ICT or the potentials it holds.

Merely not knowing about ICT and the potentials it offers and its importance in the area of pedagogy is an impediment which will may not allow the acceptance and use of ICT in teaching and learning process.

Teacher M when asked about her experience using ICT in teaching stated "I don't know anything about ICT, so I can't use it.

This teachers' comment revealed that she just don't have an idea of what ICT is about or knows how to use it in any way. Even though she explained that ICT is an important tool in today's education, an idea that she might have caught up to from listening to others, yet she doesn't know anything about it and doesn't show interest in it.

Furthermore, factors such as lack of infrastructure, lack of financial, lack of teacher training (development), insufficient tools, lack of necessary tools and materials, concerning the use of ICT also influences their attitudes negatively on the acceptance and use of ICT too.

Teacher N stated: in my school here where I teach there is no functional learning environment to teach the students computer studies and out of the computers available its only one computer that is functional and there's no way

i can teach 30 students efficiently using a single computer when they really need practical as part of the learning process.

Teacher P said: as a teacher i cannot be expected to spend my money to by tools that is need to teach in the classroom when the school or government is supposed to be responsible for it. More so, some teachers would like to own a computer but the cost alone does not afford an opportunity of owning one.

Factors that ignites the acceptance and use of technology

Teacher attitudes towards the acceptance and use of ICT tools in education will only be positive if all the factors that does not allow the acceptance and use of ICT is addressed, such as mentioned in the section above. The following factors are the factors that ignites the acceptance and use of technology by teachers.

- Teacher support from their schools administration

- Access to adequate technology

- Students parent support

Gaining support from the school administration goes a long way to encourage teachers to react positively and work efficiently with technology in the classroom as it gives them encouragement that their efforts are been appreciated. Also, that the school also knows how important what they are doing for the purpose of pedagogy to achieve learning outcomes and produce students who can optimize their potentials to the fullest.

Access to adequate technology as a factor impels teachers to also accept and use technology as, when technology is available it allows the teacher to be able to go through it; trying them out to see what they personally can learn and how they can develop using it before they can also go and use it in the classroom for the purpose of

pedagogy. Also, when the parents of students show the students that these teachers teach, by helping out in learning about technology, it will help reduce the effort that has to be spent by teachers in using technology in the classroom as some of this learners would have become conversant with the use of technology and it will also help to curb the negative attitudes that students may have about technology.

Chapter 5

CONCLUSION

This dissertation probed the attitude of teachers towards using ICT as an educational tool in education and also the beliefs that teachers hold concerning the use of ICT tools in pedagogy with respect to age, education, experience level, certification, subject taught, duration of computer use and gender. 200 teachers in Nigeria from 3 local government in two different geolocation in the country took part in this study. This comprises of 2 local government from city of Ibadan and a local government from Abuja, the Federal Capital Territory. This survey was carried out during the spring semester of 2014-2015.

The results from this study proved that the attitude of Nigerian teachers on the use of ICT tools in pedagogy is relatively positive but also shows that the use of computer in pedagogy by the teachers is very limited. The beliefs of teacher on using computer to teach or any other ICT tool in education is relatively dependent on their experiences, but given the belief that the teachers exhibited in this study, it can be said that their belief is quite low and that they do not possess strong conviction concerning the beliefs in the potentials of ICT tools. This is evident in significant differences on the belief that the teachers possess.

The research study also showed that the attitudes according to age possess significant differences, which proves that age can influence the attitude that is exhibited by

teachers. The study also revealed that there are also certain factors that can influence the attitude of teachers on the use and the acceptance of ICT tools in education. These factors can either impede them (factors such as student attitude, lack of ICT tools, lack of infrastructure or conducive learning environment) or impel (teacher development by training, availability of ICT tools amongst other factors) them to use ICT tools.

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APPENDICES

Appendix A: Demographics

Background on ICT and Access to ICT Tools:

Please answer the following questions carefully with the filling of appropriate answers.

1. How many years have you teaching?

   0 – 15yrs ☐   16 -30yrs ☐   31 – 45yrs ☐

2. How old are you? 25 – 35yrs ☐ 36 – 45yrs ☐ 46 – 55yrs ☐ 55 -65yrs ☐

3. Gender :   Male ☐   Female ☐

4. Which subjects do you teach in your school: Science Subjects ☐

   Commercial Subjects ☐ Arts Subjects ☐ Sports ☐ Physical

   Health Education ☐   vocational subjects ☐

5. For how long do you use computer in the classroom per week?

   More than 5hrs ☐ 2 -5 hrs ☐ Several times in a week ☐

6. For how long do you use computers in a day?

   0hr ☐   1 – 5hrs ☐   6-10hrs ☐

7. Did you get any computer courses during your university education?

   Yes ☐   No ☐

8. Have you ever attend to a certificate program/in-service training related with computers in your career? Yes ☐ No ☐

Appendix B: Questionnaire

s/n	Statements	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
1	Computer would help me organize my work					
2	Using computer would make subject matter more interesting					
3	Computer save time and effort					
4	Using computer is enjoyable					
5	Computer make me much more productive					
6	Teaching with computer offers real advantage					
7	Computers have proved to be effective learning tools.					
8	Computer would enhance students learning					
9	I would rather do things by hand than with a computer.					
10	Computer will improve education					
11	Computer do not scare me at all					
12	I do not like talking with others about computers.					
13	I like to use computer in teaching.					
14	Computers are fast means of getting information					
15	I would like to learn more about computers.					
16	ICT can be a tool for instruction and learning for every subject matter in the curriculum					
17	I believe that ICT is useful only for administration and teacher's work preparation (exams, test, etc.)					
18	I believe ICT can help student in critical thinking.					
19	ICT is impressive but cannot contribute substantially to teaching and learning.					
20	I believe ICT cannot contribute to learning because it do not activate students.					
21	I need more reasons to be convinced about ICT usefulness in the educational process.					
22	I believe that I will not be able to use ICT effectively in my job.					
23	We have to introduce ICT in schools because it will prevail in future society.					
24	I am cautious about ICT use in education, because ICT restrict					

	social interaction and isolates people.	79				
25	I believe that I will not be able to use ICT in my instruction, because I feel insecure about its application in education.					
26	I should use ICT in my instruction but I do not know how to organize and manage student learning tasks.					
27	I want to use computer in the instruction of my subject matter, but it frightens me that students are more skilled in ICT.					
28	I am afraid that ICT will reduce the teacher's role, and this will be negative for children's education.					
29	ICT will upgrade teacher's role making it more substantially.					
30	I believe that the role of the school will be radically changed in future years because of ICT.					
31	I believe that the teacher's will be radically changed in future years because of ICT					
32	I believe textbooks' preferential role in education will be replaced by new media based on ICT					

Appendix C: Interview Questions

1. In your own words, what is your experience with the use of ICT tools in the classroom with respect to the reaction you get from the students you instruct?

2. What factors do you think impedes the utilization of ICT tools in your teaching practice and learning and what approach do you think can be taken to find a lasting solution?

3. What do you think can be done to have a better utilization of ICT in high school education in Nigeria?

4. What can you say about the level of awareness of teachers about the potentials of ICT where you tutor?