CHAPTER ONE

INTRODUCTION

Background to the Study

Over the years, educationists view knowledge as something that proceeds from the teacher to the learner which can only be acquired within geographically delineated areas called schools. Teachers were then viewed as custodians, givers and distributors of knowledge. The learning content was considerably stable and consequently a teacher could use the same lesson note for many years, presenting the same learning content to different groups of learners. The predominant pedagogical design was teacher-centered.

However, the breathtaking developments in technology advancement (e-learning) are continuously revolutionizing the instructional process not just through introduction of technological devices but by making 360 degrees shift in the instructional pendulum, from teacher-centered to learner-centered instruction. It is in this regard that November in Okure (2008) exclaimed that the real revolution in learning is not about adding technology on top of current structure of schooling; instead, the real revolution is about a transformational shift of control from the school systems to the learners. Therefore, this shift in the instructional process is the advent of e-learning which implies learning through electronic media, otherwise called electronic learning.

Electronic learning is an inclusive term that describes educational technology that electronically or technologically supports learning and teaching. Naidu (2006) described e-Learning as incorporating all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or stand alone computer and other electronic devices. Electronic learning is concerned with learning through any electronic medium that may or may not be connected to the internet. Electronic learning is basically the use of information and communication technologies (ICTs) to enhance and support teaching and learning (Ipaye, 2011).

Electronic learning tools are those electronic learning devices that can be use to enhance and support teaching and learning. Brown and Voltz (2005) viewed e-Learning tools to include: multi-media, internet, and blended learning, Electronic learning has an advantage of enabling students to learn from anywhere and anytime. It also provides a one-stop service for business educators and lecturers in order to create and deliver educational content quickly, effectively, and economically (Bupo & Ndinechi, 2015). In supporting the above view, Naidu further highlighted the attributes of e-learning as to include:

> "ability to enable access to hypermedia and multi-media based resources, ability to enable flexible access to information and resources, ability to afford a wide range of opportunities to capture, store and distribute information and resources of all forms and formats,

> which can be realized through individualized self-paced offline and online e-Learning as well as synchronous or asynchronous groups-based e-Learning" (p.39).

The primary role of these e-Learning tools for teaching strategies was to provide effective and efficient ways to improve teaching and learning in business education in tertiary institutions. Therefore, multimedia are needed because they involve the combination of the various digital media types such as text, sound, CD-Rom, video dice, hypermedia software, video camera, interactive radio, multimedia projector, digital projector and virtual library among others into an integrated application or presentation to convey a message or information to an audience. The use of under listed multimedia for teaching would aid a business educator organizes his/her course content in such a way that enhances experience of the students. Ogunsola and Adesoye (2006) asserted that multimedia add new dimension to learning experience because concept is easier to present and complemented with image and animation.

Some business education programme in tertiary institutions seems not to have been using multimedia for teaching. It appears that the unavailability of these multimedia in business education in tertiary institutions in south east Nigeria has affected business educators. Some tertiary institutions have been using e-Learning tools; however there seem to be a disparity in how business educators use internet tools for teaching strategies.

Internet involves the change from traditional pedagogical practices that underpin teaching and learning processes because they are teacher-

centered methods. Where business educators are not placed with internet tools like virtual library, face book site, web 2.0 site, google search engine, and blogs, the issue of using them will be a mere tale. Some business educators have personally adopted the use of computer, internet connection for e-Learning tools. Some others rely on traditional mode of teaching and learning. The importance of these e-Learning tools cannot be over emphasized. Internet tools for teaching strategies will lead to better teaching and learning processes which is learner-centered. This can be achieved when teaching and learning involve blended learning (Naidu, 2006).

Blended learning is a combination of computer, internet and digital media with established classroom forms that require the physical co-presence of the teachers and students (Naidu, 2006). It helps business educators to acquire learning on face-to-face mode while enjoying the fruits of the far available items like computer, plasma screen, power point, educational software, and virtual classroom among others. Many schools have utilized blended learning tools for teaching strategies, however; the extent to which they are used is still unknown. The importance of these blended learning is that, it is a means to a learning encounter in which face-to-face or the traditional teacher-learner instruction is combined with technology-mediated instruction. To be successful in utilization of e-learning, teaching and learning could appropriately involve the use of telecommunication (Horton & Horton in Bupo (2012).

Telecommunication is a means of exchange of information over significant distance by electronic means. Some business educators in schools have been provided with this e-Learning tools but the extent to which they are used is still unknown while in some schools they are not. Horton and Horton in Bupo (2012) pointed out that the use of mobile smart phones, interactive television, podcasting, video conferencing, computer aided assessment and satellite cable among others will improve learner-centered learning. There seem to be uncertainty in how business educators utilize telecommunication tools for teaching strategies.

Electronic Learning tools for teaching strategies by business educators is pivoted by training and retraining given to business educators. Training is the process of developing skills, habits, knowledge and attitudes in employees for the purpose of increasing the effectiveness of the employees in their present positions as well as preparing them for future positions in the service, while retraining means providing additional training to people who are already trained, in order to further enhance their productivity, that is competence to handle contemporary challenges in their professional areas (Cole in Otuka, 2010). This can be done through in-service trainings, conferences, seminars, and workshops on the use of e-Learning mode for the process of teaching and learning. Kling in Bupo (2012) noted that the use of e-Learning is affected by level of training and retraining of business educators on the use of information communication technology devices.

Business educators who are not trained and retrained in the general use of e-Learning tools will not be able to use them for educational purposes and hence they will discourage the new trend of using electronic devices for education.

Thus, effective utilization of electronic learning tools as teaching strategies by business educators in tertiary institutions have not been achieved due to a slow pace of acceptance and use (Manir, 2009; Bassey, Uworen, Akuegwu, Udida & Ntukidem, 2005). Little knowledge of ICT (e-learning) usage was observed among business educators as their students' proved naive of e-Learning practices in their trainings (Ngurukwem, 2005). However, Agboeze, Ugwoke, and Onu, (2012) lamented that the pace of development and utilization of e-Learning tools and application for educational purposes, including the teaching and learning of business education courses in developing countries like Nigeria, is still very low. Agboeze, Ugwoke, and Onu, (2012) observed that it appears some of these e-Learning tools are not sufficiently provided for teaching and learning processes in the tertiary institutions. This might account for why business educators are not utilizing them in their teaching. This has been attributed to such factors as inadequate fund available to schools for training of their teachers in ICT skills, lack of equipment and electronic devices and constant electric power failure (Aduwa-Agiegbean & Iyamu, 2005; Ohakwe & Njoku, 2010).

Gender can be an influencing factor to the utilization of e-Learning tools for teaching strategies by business educators in tertiary institutions. Murphy and Greenwood in Sharda (2010) reported that age and gender effects could be factors in determining the extent of the low teacher utilization of e-Learning for instructional delivery. In the same vein, Paula (2010) suggested that male business educators experience less anxiety about e-Learning and make more frequent use of it. However, female business educators are assumed to show lower confidence or knowledge ability then male about e-Learning usage (Volman & Van Eck, in Vencatachellum & Munusami, 2006).

Similarly, type of institutions and institutions ownership could influence the utilization of e-Learning tools for teaching strategies in business education. Okiki (2011) pointed out that the utilization of e-Learning tools is influenced by the stakeholders. As noted by Volman and Van Eck in Vencatachellum and Munusami (2006), one of the stakeholders is the educational institutions. Others include the students, the instructors, content providers, technology providers, accreditation bodies and employees. They also noted that budgeting factors in a country could make the procurement of e-Learning tools for teaching strategies by institutions difficult or easy, as the case may be. Okiki (2011) revealed that schools type's assessment show that awareness, culture, technology, pedagogy and content needed to be considered in e-Learning has more improvement in the

public owned than in private owned tertiary institutions in Nigeria. Okebukola in Okoro (2008) stressed that e-Learning tools are not part of classroom technology in over 90 percent of tertiary institutions in Nigeria. Thus, the chalkboard and textbooks continue to dominate classroom activities. Business educators themselves need training in areas of e-learning competences to be able to integrate e-Learning tools efficiently and effectively in their teaching tasks.

The utilization of e-Learning tools in colleges of education and universities might differ and as such the utilization in various institutions type may also differ. It is possible that the management of tertiary institutions can view the use of e-Learning from different perspectives. The government owned and privately owned tertiary institutions may differ in the e-Learning tools provided to them (Leem & Lim, 2007). Manir (2009) also noted that the utilization of e-learning has begun in government tertiary institutions.

Business education as a component of vocational technical education programme, prepares individuals for careers in business and to be an intelligent consumers of economic goods and services. It provides students with the needed competencies, skills, knowledge, understanding and attitudes to perform as workers in industries, civil service and also as proprietors of business. Business education is work-focused, skills-based, result-oriented, and technology-based (Ugwoke, 2011). Therefore, for

business education programmes to sustain its relevance in providing the needs of individuals and that of the society, it must embrace current trends of e-learning in the academic and economic demands of the society by encouraging the utilization of e-learning tools in today's business education training programme. Business educators should therefore be trained and retrained to be competent, knowledgeable, and skilful in the use of e-learning for instructional process. This is not the case in some tertiary institutions. Thus, the drive to determine the extent of utilization of e-Learning tools for teaching strategies by business educators in tertiary institutions in south east Nigeria and how they are used necessitated this research.

Statement of the Problem

The call for utilization of e-Learning tools as teaching strategies by business educators in instructional delivery is to infuse and inject efficiency and effectiveness in curriculum implementation. The importance of e-Learning is enormous. It is gaining knowledge and experience through the use of electronic devices such as computers, television, and internet among others. Naidu (2006) conceived e-Learning as incorporating all educational activities that are carried out by individuals or groups working online or offline, synchronously or asynchronously via networked or stand-alone computer and other electronic devices. It provides a range of tools that can

significantly extend and enrich teacher's instructional strategies and support student learning.

However, observation shows that e-learning tools as teaching strategies are in place. For teachers to utilize them they may require some inducements such as training and retraining. According to Brown and Voltz (2005), e-Learning tools as teaching strategies as multimedia, internet, blended learning if they are in place, while Ziewer and Seidi (2011) named telecommunication, training and retraining of business educators. Generally, in business education, e-learning tools as teaching strategies are adopted by teachers if they had training experience. There appears to be inadequate fund available to schools for training of their teachers in e-Learning skills and also insufficient number of equipment and electronic devices.

Therefore, the inability of business educators to utilize these e-Learning tools as teaching strategies could result to teaching and learning continuing to be teacher–centered rather than learner-centered. It could also hinder collaborative, active and lifelong learning. It is from this background that the present study is carried out to determine the extent of utilization of e-Learning tools as teaching strategies by business educators in tertiary institutions in south east Nigeria.

Purpose of the Study

The purpose of this study is to determine the extent of utilization of e-Learning tools as teaching strategies by business educators in tertiary institutions in South East, Nigeria. Specifically, the study sought to determine the extent of utilization of:

(1) Multimedia as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria.

(2) Internet as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria.

(3) Blended learning as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria.

(4) Telecommunication as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria.

(5) Training and retraining of business educators as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria.

Significance of the Study

The findings of this study would be of benefit to the students of business education, teachers (business educators), government, and future researchers. The findings would benefit students of business education by enlightening them in many ways on the use of modern instructional mode that can help them to access the instructors' messages whether present in the

classroom or not, and become independent in their learning. This would help them to assess the resource material needed for acquiring knowledge anytime and anywhere.

The findings would benefit teachers by providing a vast number of resources that can assist them in teaching and planning for different avenues through which students can learn best. This would enable the teacher to make request for appropriate resource materials to authorities responsible for e-Learning strategies.

The findings would benefit government through the Ministry of Education to decide on modalities for training and order for efficiency and effectively use of the new instructional mode to achieve the objectives of business education. This would enable government to organize sensitization programme on the need for compulsory implementation of e-Learning in business education.

Finally, the findings of this study would be a useful reference source for future researchers. This would also serve as a guide to them for research on strategies for enhancing e-Learning in their area of concern.

Scope of the Study

The study focused on extent of utilization of e-Learning tools as teaching strategies by business educators in tertiary institutions in South East, Nigeria. It covered the extent of utilization of multimedia, internet, blended learning, telecommunication, and training and retraining of business

educators as teaching tools for e-Learning by business educators. The scope of this study covered both public and private colleges of education and universities that offered business education programmes in south east Nigeria. The independent variables were restricted to business educators gender, type of institutions and ownership of institutions.

Research Questions

The following research questions guided the study:

(1) To what extent do business educators in tertiary institutions in south east, Nigeria utilize multimedia as teaching tools for e-Learning?

(2) To what extent do business educators in tertiary institutions in south east, Nigeria utilize internet as teaching tools for e-Learning?

(3) To what extent do business educators in tertiary institutions in south east, Nigeria utilize blended learning as teaching tools for e-Learning?

(4) To what extent do business educators in tertiary institutions in south east, Nigeria utilize telecommunication as teaching tools for e-Learning?

(5) To what extent do business educators in tertiary institutions in south east, Nigeria utilize training and retraining of business educators as teaching tools for e-Learning?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

(1) Business educators' do not differ significantly in their mean ratings on the extent of utilization of multimedia as teaching tools for e-learning based on type of institution (colleges of education and universities) in south east, Nigeria.

(2) There is no significant difference in business educators' mean ratings on the utilization of internet for teaching tool as e-learning as a result of type of institution (college of education and university) in south east, Nigeria.

(3) Business educators' from colleges of education and their counterparts from universities do not differ significantly on the extent of utilization of blended learning as teaching tools for e-learning based on gender (male and female) in south east, Nigeria.

(4) There is no significant difference in business educators' mean ratings on the extent of utilization of telecommunication as teaching tools for e-learning as a result of institution ownership (public and private owned) in south east, Nigeria.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this chapter, the views of other authors, as they relate to this study, were reviewed under the following sub-headings:

Conceptual Framework

Utilization

e-Learning tools

Teaching strategies

Business Educators

Theoretical Framework

Constructivist Learning Theory

Behaviourist Learning Theory

Theoretical Studies

Utilization of Multimedia as teaching tools for e-Learning

Utilization of Internet as teaching tools for e-Learning

Utilization of Blended learning as teaching tools for e-Learning

Utilization of Telecommunication as teaching tools for e-Learning

Utilization of Training and Retraining of Business Educators as teaching tools for e-Learning

Relevance of e-Learning Tools in Business Education

Problems Encountered in the Utilization of e-Learning Tools

Empirical Studies

Summary of Review of Related Literature

Conceptual framework

Utilization

To utilize means “to make use of something, or find a practical use for something’. It is more specific than use. Utilize is more common in technical contexts: The device utilizes a special plug-in connection. It can also refer to using things in unusual or unintended ways, as a more formal equivalent of "make use of”: When the fan belt broke they had to utilize a leather belt. In business jargon and in other contexts, utilize is often found when the meaning intended is simply "use," a use that should be avoided: Successful applicants will be able to use their skills and experience in this field Encarta (2009).

E-learning utilization means the use of electronic media and information and communication technologies (ICT) in education. It is also any form of learning that utilizes a computer or technological network for delivery, interaction or facilitation.

e-Learning tools

e-Learning is an acronym for electronic learning. However, is an approach to teaching and learning, representing all or part of the educational model applied, which is based on the use of electronic media and devices as tools for improving access to training, communication and interaction, and which the adoption of new ways to understand and develop learning.

Electronic Learning as a sub-system within Information and Communication Technology; is the electronic process which enhances the delivery and administration of learning opportunities and support via computer, networked and web-based technology to help individual performance and development. The basic principle of e-learning is connectivity – the process by which computers are networked to share information which can connect people. This is provided by what is often called the e-learning landscape or architecture, which refers to the hardware, software and connectivity components required to facilitate learning (Okure, 2008).

Uwakwa in Ogwu (2007) defined e-Learning as the uses of technology to enable people learn anytime and anywhere through computer. Computer programmable multi-use machine that accepts data and process or manipulate them into information such as: summaries, totals, reports, among others. Otuka (2010) defined e-learning as all forms of electronically supported learning and teaching which are procedural in character and aim to effect the construction of knowledge with reference to individual experience, practice and knowledge. Thus, e-Learning involves the use of learning process conducted via electronic media and interaction between the learner and teacher or peers through formal or informal education. It includes ICT based tools (e.g. internet, computer, mobile telephone, radio, video, and others) and content created with technology (e.g. animations) to support teaching and learning activities (Jenkins & Hanson, 2003). Nwokike (2010)

also defined e-learning as the use of computer as a key component of the education environment. It is also the use of Information and Communication Technology (ICT) which include computer networks, communication and mobile technologies to enhance and extend learning.

In another perceptive, Nwosu (2004), defined e-Learning as the use of new multimedia technologies and the internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration. Electronic learning is another way of teaching and learning as it comprises instructions delivered through all electronic media including the internet, intranets, extranets, satellite broadcasts, audio/video tapes, interactive TV and CDROMs (Govindasamy, 2012). It facilitates access to knowledge that is relevant and useful. Electronic learning involves the delivery of education and training to anyone, anytime, and anywhere. It is a technology that takes the classroom to geographically distinct and separate environments. Abifarin (2004) noted that e-learning is a very broad term. It is used to describe any types of learning environment that is computer enhanced. There are multiple technologies that can be employed in e-learning. It has become one of those types of words that are so general as to have lost some of its meaning. To Ajagun (2003), e-learning encompass the radio, television, videos, computers, sensors, interface, boxes, e-mail, satellite connections, internet and all the software and materials which are employed by the teachers' for instruction are termed on-line instruction. The

development and impact of e-learning in education cannot be over emphasized and it is one of a kind in history. For instance Anao (2002) outlined the following characteristic that makes it unique from others as follows:

a) It is happening at extremely fast pace.
b) It is impacting all corners of the globe.
c) The effects of the revolution are being experienced by all sectors of the society.
d) There appears to be no natural rules or law hindering or governing the pace and direction of the revolution.
e) The demand for e-learning products is insatiable, and
f) The generation that has grown up with information technology has developed intuitive means of absorbing and exploiting of the older generation.

However, the extent to which e-Learning assists or replaces other learning and teaching approaches is variable, ranging on a continuum from none to fully online distance learning. A variety of descriptive terms have been employed (somewhat inconsistently) to categorize the extent to which technology is used. For example, 'hybrid learning' or 'blended learning' may refer to classroom aids and laptops, or may refer to approaches in which traditional classroom time is reduced but not eliminated, and is replaced with some online learning. Distributed learning may describe either the e-

Learning component of a hybrid approach, or fully online distance learning environments. Another scheme described the level of technological support as 'web enhanced', 'web supplemented' and ‘web dependent’ (Commission on technology and adult learning, 2011).

Nwokike (2010) explained that e-learning may either be synchronous or asynchronous. Synchronous learning occurs in real-time, with all participants interacting at the same time, while asynchronous learning is self-paced and allows participants to engage in the exchange of ideas or information without the dependence of other participants′ involvement at the same time. *Synchronous* learning refers to the exchange of ideas and information with one or more participants during the same period of time. Examples are face-to-face discussion, online real-time like teacher instruction and feedback, Skype conversations, and chat rooms or virtual classrooms where everyone is online and working collaboratively at the same time.

Asynchronous learning may use technologies such as email, blogs, wikis, and discussion boards, as well as web-supported textbooks, hypertext documents, audio video courses, and social networking using web 2.0. At the professional educational level, training may include virtual operating rooms. Asynchronous learning is particularly beneficial to students who have health problems or have child care responsibilities and regularly leaving the home to attend lectures is difficult. They have the opportunity to complete their

work in a low stress environment and within a more flexible time frame. In *asynchronous* online courses, students proceed at they own pace. If they need to listen to lecture a second time, or think about a question for a while, they may do so without fearing that they will hold back the rest of the class. Through online courses, students can earn their diplomas more quickly, or repeat failed courses without the embarrassment of being in a class with younger students. Students also have access to an incredible variety of enrichment courses in online learning, and can participate in college courses, internships, sports, or work and still graduate with their class. Both the asynchronous and synchronous methods rely heavily on self-motivation, self-discipline, and the ability to communicate in writing effectively.

The implication of this is that e-learning is now placing different demands on education in general and Business Education in particular. Therefore, a second thought of how business education curriculum is taught in Nigerian tertiary institutions becomes important if our educational system is to be relevant to serve the societal needs in the present technologically advancing age. Through employing electronic learning in teaching and learning situations to improve and enhance business education programme, academic proficiency, effectiveness and efficiency in the world of work. Olaofe (2005), agreed to this by observing that challenges for the lecturers in tertiary institutions are no longer covering the course content. There is, therefore, the need for business educators to be up-to-date in the knowledge

and skills especially in e-learning and as well as to employ its facilities in teaching and learning situations.

E-learning tools is a digital educational resource which is divided into units that are reusable, adaptive, and can be re-purposed to different learning styles, knowledge levels and conditions. These tools can be used in various forms that suit the individual user. According to Nwaosa and Okolocha (2014) the e-Learning tools includes computer hardware, software applications among others.

Computer hardware is a machine that can be programmed to accept data input, process it into useful information (output) store it for as long as required. They are the modern of all machines that process, analyses. Store, Supplies and retrieve information instantaneously (Nwosu, 2009).

Software is a collection of computer programs and related data that provide the instructions for telling a computer what to do and how to do it, In other words, software is a conceptual entity which is a set of computer programs, procedures, and associated documentation concerned with the operation of a data processing system (Adeniran, 2002). According to Otuka (2010), software refers to one or more computer programs and data held in the storage of the computer for some purposes. In other words software is a set of programs, procedures, algorithms and its documentation. Program software performs the function of the program it implements, either by directly providing instructions to the computer hardware or by serving as

input to another piece of software. The term was coined to contrast to the old term hardware (meaning physical devices).

Teaching Strategies

Teaching is a set of events, outside the learners which are designed to support internal process of learning. Teaching (Instruction) is outside the learner. Oyetunde (2014) put out that the current thinking about teaching is that it is an active, constructive process in which the teacher assumes the role of a strategic planner, making decision about the current and the appropriate instructional strategies.

Strategy, according to Hornby (2010), is a plan that is intended to achieve a particular purpose. Okwuanaso and Nwazor (2000) viewed strategy as an act or ways of planning operation especially of troops so as to fight successfully and win. It entails skills in managing an affair or matter in hand, is a tactics for achieving an objective. It consists of several parts, methods, designs, and techniques all of which join together to help achieve a goal. Nwosu (2012) defined strategy as the action taken in a programme to ensure that the programme achieved its goals. It was explained further as techniques that an organization would use to deliver services and implement activities in order to achieve its goal. According to Onwuchekwa (2002), strategy is the determination of the basic long term goals and objectives in an enterprise and the adoption of action and the allocation of resources.

However, in teaching and learning the researcher understands strategies as ways, techniques and procedures of arousing interest in teaching are achieved. It consists of several parts, methods, designs, and techniques all of which join together to help achieve a goal. Teaching strategies involve the use of variety of teaching methods and techniques. The fundamental importance of teaching strategies is to make it easier to implement a variety of teaching methods and techniques. Here is variety of teaching strategies to help students take more responsibility for their own learning and enhance the process of teaching for learning such as: blended and online learning, brainstorming, case studies, debates, problem solving, flipped classroom, questioning, stimulations and teaching diverse groups among others. The key is to create learning environments that are more interactive, to integrate technology where applicable into the learning experience, and to use collaborative learning strategies when appropriate.

Business Educators

The term business educators according to Ogwu (2006), refers to any teacher who holds at least any of the following qualifications: N.C.E, B.Ed, among others in (business education). Agusigbo (2002) stated that business educators refer to teachers with following qualifications (N.C.E, H.N.D, B.Ed, and B.Tech. (Ed.), M.Sc., Ph.D., with formal training in personal pedagogy. Aina (2002) stated that a business educator should register and be member of Nigerian Association of Business Educators (N A B E) now

called Association of Business Educators of Nigeria (ABEN). This is important because no education can rise above the quality of its teachers as recorded in the National Policy of Education (FGN, 2009). Osuala (2004), is of the view that business educator is any person who plays a critical role in making business education viable and visible in the community; plays the critical role of agent of change in business education: delivers high quality business education programmes that are equal to any academic offerings in the school system; and is able to identify problems facing learning and teaching in business education subjects and is able to proffer solutions to these problems.

Esene (2008) asserted that a business educator is deemed qualified if he/she has both the educational qualifications and academic background. The author further stated that a qualified business educator is one who studies business education as an integrated discipline, not the components thereof such as accounts, economics, commerce, typewriting, shorthand, cooperative commerce, and so on. The author further stated that a qualified business educator should be able to teach business studies components, namely typewriting, shorthand, office practice, book keeping, economics and the jobs, but also future jobs which they wish to aspire to.

Theoretical Framework

Theory

Theory is a set of assumptions, propositions, or accepted facts that attempts to provide a plausible or rational explanation of cause-and-effect (causal) relationships among a group of observed phenomenon (Online Business Dictionary, 2013). This theory evolved from both psychology and philosophy and holds that assimilation, accommodation, and construction are the basic components of learning. The theories are Constructivist Learning Theory and Behavourist Learning Theory.

Constructivist Learning Theory

The leading proponents of constructivism theory are Piaget (1972), Dewey (1916) and Bruner (1990). Constructivism is approach to teaching and learning based on the premise that cognitive (learning) is the result of mental and construction. Knowledge is not received from outside, but by reflecting on our experience, by fitting new information together with what people already knew and construct knowledge in their hand.

Constructivist learning has emerged as a prominent approach to teaching during these past decades. It represents a paradigm shift from education based on behaviourism to education based on cognitive theory. Constructivist epistemology assumes that learners construct their own knowledge on the basis of interaction with the environment. Four

epistemological assumptions are at the heart of what is referred to as "constructivist learning".

a. Knowledge is physically constructed by learners who are involved in active learning.
b. Knowledge is symbolically constructed by learners who are making their own representation after action.
c. Knowledge is socially constructed by learners who convey their meaning to others.
d. Knowledge is theoretically constructed by learners who try to explain things they do not completely understand (Tobias & Duffy, 2009).

According to Dewey (1916), learners construct their knowledge by actively participating in the learning process and constructing their own meanings and understanding. Concepts that are central to the constructivist learning theory includes: collaboration, learner autonomy, reflection, and experiential learning. Constructivists are based on instructional principles that are used for successful e-learning. These instructional principles includes; providing an interactive learning environment through online discussion, critical thinking reflection, timely positive feedback, establishment of collaboration learning projects, facilitation of meaningful learning experiences, and application of real world knowledge through business education programme.

According to Piaget (1989), constructivists give teachers another perspective to rethink how students learn and to focus on process and provide ways of documenting change and transformation. It also reminds teachers to look for different ways to engage individual student, develop rich environments for exploration, and prepare coherent problem sets and challenges that focus. The principles of constructivism when applied to individual learning, it is essential to understand that we need to consider the cultural environment in which this learning takes place. Isolated learning is an oxymoron. Merriam and Caffarella (1998) suggested that e-learning, while self-directed, must have input from outside influences that may form investigation, social interaction, or more formal learning environments. The constructivist learning approach involves educators building schools curriculum around the experience of it students. Constructivists believe that learner-centered instructional classroom methods will strengthen the commitment and involvement of self-motivated learners because of their high level of interaction. Therefore, in the constructivist classroom, both teachers and students think of knowledge not as inert factoids to be memorized, but as a dynamic, ever changing view of the world and the ability to successfully stretch and explore that view. Today, there is need for incorporating technology into the classrooms to support instructional learning methods (Jonassen, 1994).

Nevertheless, constructivist methods of instruction with the use of computer technology have developed to meet the new instructional mode. One of the most powerful and versatile tools is the web-based learning. Web-learning provides learners with optimal learning environment. They can be exposed to the multiple perspectives through collaborative social negotiation within peers or teachers. Constructivism might be a broad learning theory because it is synthesized with multiple theories. Thus, it is evident that the method of instruction using technology can be applied with various approaches. Bruner (1990) explained that the main theme of this theory is that learning is a process in which the learner is able to build on events and previous information.

The relation of this theory to the present study, is that if e-learning teaching tools are efficiently and effectively utilized for teaching and learning in business education, learning will not only be active, high thinking and retentive but also learner centered, thereby considering the needs of the learner both in the present and future.

Behaviourist Learning Theory

Behaviourist theorists view learning as a change in an individual potential behavior as a result of experience. It deals with observable behaviour, and their explanation of personality focus on learning. The originators of behaviourist learning theory are; Pavlov (1889), Watson

(1913), and Skinner (1979). They seek to prove that behaviours can be predicted and controlled.

Skinner (1979) believed that people learn more if their environment is carefully controlled and developed. Skinner is well known for describing the principles of operant conditioning which basically stated that “if the occurrences of an operant are followed by the presentation of a reinforcing stimulus the strength is increased”. The author further stated that learners educational problems must be assessed and instructional objectives should be written to treat the problem. In supporting the above view, Hartly (1998) outlined four key principles of operant conditioning to include:

a) Activity is important learning, is better when the learner is active rather than passive (learning by doing is to be applauded).
b) Repetition, generalization and discrimination are important notions; frequent practice and practice in varied are contexts- is necessary for learning to take place. Skills are not acquired without frequent practice.
c) Reinforcement is the successes are preferable to negative evens like punishments and features.
d) Learning is helped when objectives are clear, those who look to behavioural objectives for example, by the end of the session participants will be able to ….with this comes a condemn with competencies and product approaches to curriculum.

However, behaviouirsts believe that students learn by memorizing chunks of information before higher level problem based learning would be taken place (Gillain, 2003). Hartly (1998) also believed that most of today's curriculum focuses on the memorized bits of information and concludes that behaviourists practices are still relevant in today's electronic world. Merriam and Caffarella (2010) added that student's master of basic technological terms, description of components, and understanding of the theory behind technical processes can be achieved through structured programme delivered through e-Learning tools. The relation of behaviourism theory to the present study is that it creates effective educational opportunities for all students, investing in computer technology in school, supporting the idea of student-centered learning, and integrating technology in learning.

Theoretical Studies

This is reviewed under the following subheadings:

Multimedia as teaching tools for e-Learning.

Multimedia is the combination of various digital media types such as text, images, sound and video, into an integrated multi-sensory interactive application or presentation to convey a message or information to an audience. Doty, Popplewell, and Byers, (2011) described multimedia as a ray of computer-driven interactive communication system, which create, store, transmit and retrieve textual, graphic and auditory networks of information. Multimedia could be interpreted as a combination of data carriers, for

example video, CD-ROM, floppy disks, Internet and software in which the possibility for an interactive approach is offered (Goldenberg, Heinze, & Ba, 2014). Ndukwe (2005) expressed the view that access to multimedia information could stimulate changes, create conductive learning environment, and make learning more meaningful, responsive to the localized and specific needs of learners.

However, the general definition of multimedia is in essence a presentation of information that incorporates multiple media such as text, audio, graphics, and animation. The representations can be redundant, incorporating the same content, or complementary, offering additional information. Multimedia need not be computerized, but computers offer some of the most seamless multimedia presentations. Moreover, digital multimedia, such as a simple CD-ROM, can offer teachers greater ease of presentation. Multimedia technologists offer several opportunities in education. First, they can be used as means of preparing the current generation of business education students for the future workplace, that is providing tools for tomorrow‘s practice. Kling in Bupo (2012) noted that today‘s students live in a global knowledge-based age and they deserve teachers whose practice embraces the best of ICT. Students can be given the opportunity of becoming a part of the knowledge. They will need to use multimedia as a teaching tool in order to equip them to be tomorrow’s employees and customers with the requisite competence and knowledge to

use ICTs within their work (Commission on technology and adult learning, 2011).

Secondly multimedia can make the school more efficient or more productive, engendering a variety of tools to support and facilitate business education programme. Finally multimedia are seen as means to reform and innovate teaching that is to stimulate teachers and students to learn actively and independently in a self directed way and in collaboration with others (Kirschier & Davis, 2013). Milken Exchange on Education Technology (1999) identified three major ways of using ICT for teaching and learning. These are information technology (IT) assisted learning which was divided into: computer assisted learning, computer assisted research and distance learning as follows:

Computer Assisted Learning is the interaction between a student and a computer system, designed to help the student learn (drill and practice, tutorials, simulations and virtual realities).

Computer Assisted Research implies a situation where ICTs is used as an aid to doing library and empirical research. This is enhanced through the growth of World Wide Web which has created virtual library that can only be accessed by the technologically literate.

Distance Learning is the use of telecommunication, designed to facilitate students learning through e-mail, interactive web sites and two way audio/video teleconferencing.

Okoro (2008) outlined the educational benefits of multimedia (from an Educator's perspective) as follows:

(1) Provide students with opportunities to represent and express their prior knowledge.

(2) Allow students to function as designers, using tools for analyzing the world, accessing and interpreting information, organizing their personal knowledge, and representing what they know to others.

(3) Multimedia applications engage students and provide valuable learning opportunities.

(4) Empower students to create and design rather than absorbing representations created by others.

(5) Encourages deep reflective thinking.

(6) Create personally meaningful learning opportunities.

In another perceptive, Okoro (2008) outlined the educational benefits of multimedia (from the Student's Perspective) as follows:

a. Giving students an opportunity to produce documents of their own and provide several educational advantages.

b. Students experience the technical steps needed to produce effective multimedia documents and become better consumers of multimedia documents produced by others.

c. Students indicate they learn the material included in their presentation at a much greater depth than in traditional writing projects.

d. Students work with the same information from four perspectives:

   i. as researchers, they must locate and select the information needed to understand the chosen topic:

   ii. as authors, they must consider their intended audience and decide what amount of information is needed to give their readers an understanding of the topic,

   iii. as designers, they must select the appropriate media to share the concepts selected and,

   iv. as writers, they must find a way to fit the information to the container including the manner of linking the information for others to retrieve. All of these contribute to student learning and help to explain, improved student learning that is often associated with IT-assisted PBL.

The elements of multimedia in education according to Clark and Mayer (2012), was very tempting to use the latest computer wizardry to represent information and develop computer enhanced learning materials. However, the instructional design of these systems should be based on a careful examination and analysis of many factors, both human and technical, relating to visual learning. When is sound more meaningful than a picture? How much text is too much? Does the graphic overwhelm the screen? For a student, this allows them to test all of their skills gained in every subject area. Students must be able to select appropriate multimedia tools and apply

them to the learning task within the learning environment in order for effective learning to take place.

A multimedia learning environment involves a number of components or elements in order to enable learning to take place. Hardware and software are only part of the requirement. As mentioned earlier, multimedia learning integrates five types of media to provide flexibility in expressing the creativity of a student and in exchanging ideas (Clark & Mayer, 2012) as follows:

Text: Out of all of the elements, text has the most impact on the quality of the multimedia interaction. Generally, text provides the important information. Text acts as the keystone tying all of the other media elements together. It is well written text that makes a multimedia communication wonderful.

Sound: Trushsed and Maitland (2005) stated that sound are used to provide emphasis or highlight a transition from one page to another. Sound synchronized to screen display, enables teachers to present lots of information at once. This approach is used in a variety of ways, all based on visual display of a complex image paired with a spoken explanation (for example, art pictures are glossed by the voiceover; or math a proof fills the screen while the spoken explanation plays in the background). Sound used creatively, becomes a stimulus to the imagination; used inappropriately it becomes a hindrance or an annoyance. For instance, a script, some still

images and a sound track, allow students to utilize their own power of imagination without being biased and influenced by the inappropriate use of video footage. A great advantage is that the sound file can be stopped and started very easily.

Video: The representation of information by using the visualization capabilities of video can be immediate and powerful. While this is not in doubt, it is the ability to choose how we view, and interact, with the content of digital video that provides new and exciting possibilities for the use of digital video in education. There are many instances where students, studying particular processes, may find themselves faced with a scenario that seems highly complex when conveyed in purely text form, or by the use of diagrams and images. In such situations, a representational quality of video help is placing a theoretical concept into context.

Video can stimulate interest if it is relevant to the rest of the information on the page, and is not overdone. Video can be used to give examples of phenomena or issues referred to in the text. For example, while students are reading notes about a particular issue, a video showing a short clip of the author/teacher emphasizing the key points can be inserted at a key moment; alternatively, the video clips can be used to tell readers what to do next. On the other hand, it is unlikely that video can completely replace the face-to-face lecture: rather, video needs to be used to supplement textual information (Clark & Mayer, 2012).

One of the most compelling justifications for video may be its dramatic ability to elicit an emotional response from an individual. Such a reaction can provide a strong motivational incentive to choose and persist in a task. The use of video is appropriate to convey information about environments that can be either dangerous or too costly to consider, or recreate, in real life. For example: video images used to demonstrate particular chemical reactions without exposing students to highly volatile chemicals, or medical education, where real-life situations can be better understood via video.

Animation: Animation is used to show changes in state over time, or to present information slowly to students so as to have time to assimilate it in smaller chunks. Animations, when combined with user input, enable students to view different versions of change over time depending on different variables. Animations are primarily used to demonstrate an idea or illustrate a concept. Video is usually taken from life, whereas animations are based on drawings. There are two types of animation: Cell based and Object based. Cell based animation consists of multiple drawings, each one a little different from the others. When shown in rapid sequence, for example, the operation of an engine's crankshaft, the drawings appear to move. Object based animation (also called slide or path animation) simply moves an object across a screen. The object itself does not change. Students can use object

animation to illustrate a point to imagine a battle map of Gettysburg where troop movement is represented by sliding arrows (Clark & Mayer, 2012).

Graphics: Graphics provide the most creative possibilities for a learning session. They can be photographs, drawings, graphs from a spreadsheet, pictures from CD-ROM, or something pulled from the Internet. With a scanner, hand-drawn work can be included. Standing commented that, “the capacity of recognition memory for pictures is almost limitless”. The reason for this is that images make use of a massive range of cortical skills: color, form, line, dimension, texture, visual rhythm, and especially imagination (Bottge, 2010).

Multimedia applications for the classroom show a clear disconnect between the media students are accustomed in using outside the classroom and the media they predominantly use within the classroom. Students spend copious amount of their free time socializing, shopping, and even studying on the Internet, where they are flooded with text, images, video, animation, and sound in what is a complex multimedia environment. The younger generation is intimately familiar with multimedia, accustomed to receiving and sharing information in a range of formats. In contrast, students spend most of their time in the classroom viewing printed text and listening to a teacher. This disconnect is troublesome. While students are accustomed to having a range of means to communicate and process information outside of school, they must conform to a more restrictive media environment within

school. Printed text is one-size-fits-all, but students' learning strengths, needs, and interests are all over the map. Thus, the traditional print-driven curriculum raises a number of barriers to access and learning.

Integration of multimedia into instruction can help to reduce curriculum barriers and improve learning for all students. This research work provides a basic introduction to multimedia and describes how it can be used to support student learning and below are selections of different multimedia forms, focusing on their potential for supporting diverse learners:

Talking books and speech synthesis: According to Goldenbery, Heinze and Ba (2014) digital texts can be read aloud using recorded human voice or synthetic text-to-speech programs. Read-aloud is an intrinsic feature of so-called talking books, but with text-to-speech software, virtually any digital content including web-based texts can be read aloud, with or without synchronous highlighting of the printed text. Speech synthesis can be segmented at a variety of levels, providing feedback at the level of the passage, sentence, word, onset rime, syllable, or sub syllable. Read aloud offers potential benefits to many students, including students with visual deficits, students with decoding problems, and reluctant readers. In addition to providing access to curriculum content for those who cannot see or decode printed text, read-aloud can support the development of key literacy skills such as fluency and reading comprehension, and increase engagement and motivation.

Text-to-speech is also a beneficial writing tool. It may be easier for students to recognize errors when listening versus reading a composition. By using text-to-speech to read back the text they have written, students may be able to revise more successfully.

Interactive Radio: This is another interactive technology. The radio learning project (RLP) introduced by USA1D operates like the ordinary radio except that it is interactive, therefore you can communicate live with the transmitter. Another variation of the interactive radio is the packet radio. According to Garrioh (2009), the packet radio combines its mature and relatively low cost technologies into radio and personal computer in a system that permits the compliers to communicate with each other.

Multimedia projector: This is a process in which specific video signal and projects corresponding image on a large screen using a lens system. Video projectors incorporate the image of a very bright light to display the image. The video signal rides a long special digitalized light that is then projected on thousand of reflection within the projector, which then shines the image onto screen **(**Kobayashi, 2008).

Digital projector: A digital projector, also called projection display system, is a specialized computer displaying that projects an enlarged image in a movie screen. Such devices are commonly used in presentations. It is used for programs that facilitate the viewing of three dimensional (3d), interactive, full motion audio, visual files on a personal computer (Agomuo, 2005).

Virtual lab: This is an interactive environment for creating and conducting simulated experiments; a playground for experimentation. It is a heterogeneous distributed problem solving environment that enables a group of researchers located around the world to work together on a common set of projects. This is a complete learning management system where the students can avail the various tools for learning including additional web-resources, video-lectures, animated demonstrations and self-evaluation (Keller & Keller, 2015).

Bulletin board system: This is computer that is running software that all users to leave messages and access information of general interest. It allows users to connect and login to the system using a terminal program. It is computers that can be dialed mainly for the purpose of reading message from and leaving messages to other users (Kling, in Bupo, 2014).

Interactive Whiteboard (IWB): Marshall (2012) noted that interactive whiteboard is a large interactive display that connects to a computer and projector. A projector projects the computer's desktop onto the board's surface where users control the computer using a pen, finger, stylus, or other device. The board is typically mounted to a wall or floor stand. They are used in a variety of settings, including classrooms at all levels of education, in corporate board rooms and work groups, in training rooms for professional sports coaching, in broadcasting studios and others. It allows the projected iron of images generated by computer into a sensitive screen that is

of the size of the traditional whiteboard. It provides instant access to materials from a variety of sources and possibility of using pre-prepared lectures without visual and vise-visa. It is a presentation device that interfaces with a computer.

This allows even a novice user to run applications such as CD-ROMs, word-processing documents, spreadsheets, presentations and the internet, simply by clicking in the right places on the board without losing engagement with the class. There are two versions of IWB hardware setting one can have in a classroom. There is some essential equipment: PC, speakers, data projector that you need to have combined with either an infra-red kit fixed to any standard whiteboard or a solid-state impact-resistant whiteboard like Smart board, Team board, IQ Board or Promethean. The integration of this technology in the classrooms is an exciting new development. It encourages teachers to manipulate the technology in order to develop active, accelerated learning, supports and extends a wide range of learning styles and emphasizes whole-class teaching strategies (Marshall, 2012).

The following are benefits of interactive white board for business educators according to Marshall (2012):

(1) It enables teachers to integrate ICT into their lessons while teaching from the front of the class.

(2) It encourages spontaneity and flexibility, allowing teachers to draw on and annotate a wide range of web based resources.

(3) It enables teachers to save and print what is on the board, including any notes made during the lesson, reducing duplication of effort and facilitating revision.

(4) It allows teachers to share and re-use materials, reducing workloads.

(5) It is widely reported to be easy to use, particularly compared with using a computer in whole class teaching.

(6) It inspires teachers to change their pedagogy and use more ICT, encouraging professional development. By better preparing their lessons, teachers raise their educational standards and consequently their self-esteem.

Electronic Copy Boards: This looks just like regular whiteboards but have the ability to print out what is drawn after the presentation. The copy board prints onto A4 paper that can be handed out to people attending your presentation. The built-in printer sits just under the copy board as shown in the picture. Most copy boards can optionally be connected to computers. The whiteboard images can be downloaded to the computer and printed, saved, changed, faxed and emailed. Like fax machines, copy boards come with thermal printers or paper printers. Thermal printers print onto thermal fax paper (Kling, in Bupo, 2014). Paper printers print onto plain paper using ink cartridges that have to be replaced when they run out. Plain paper is

obviously a nicer printout, but one can always photocopy the thermal printout for handouts.

Quick Books: The World Bank (2002) opined that accounting software is most widely used for bookkeeping and accounting software for small business. The application enable businesses to track expenses, prepare and send invoices, put together financial statements, track inventory, prepare purchase orders, write cheques and other accounting, bookkeeping and control tasks. Quick books interface enable learners to record transactions in screen that looks like your paper forms such as cheques. It makes it easier for closing account at the end of a fiscal period**.**

CD-ROM storybooks: According to Bottge (2010), CD-ROM storybooks offer digital text in combination with features such as animations, illustrations, speech, and sound. For example, a CD-ROM storybook might offer the story text together with animations, vocabulary definitions, and sound effects. Some storybooks incorporate an audio version of the text. CD-ROM storybooks offer great potential for engaging students, and some incorporate valuable literacy supports. Thus, they can benefit reluctant readers and students with deficit in basic literacy skills.

However, their multimedia features are not always instructionally germane. Some storybooks feature entertaining animations and sound effects that, while entertaining, do not directly support access or learning. In fact, they may be distracting for some students. Thus, teachers are wise to select

CD-ROM storybooks carefully and with consideration of individual student characteristics.

Video/videodiscs: Video/videodiscs offer a means to contextualize curriculum content and instruction across the curriculum. For example, video can be used to anchor mathematics instruction to an authentic context. That is, video can be used to present to students a real-world context within which mathematical problem-solving can then be situated. Video/videodisc based anchored instruction can similarly be applied to contextualize instruction in other content areas. These approaches are valuable in helping to engage and motivate students, in providing students with alternatives to text, and in supporting differences in background knowledge (Salami, 2009).

Hypermedia: Hypermedia refers to hyperlinked multimedia linkage of text, audio, graphics, animation, and/or video through hyperlinks. For example, a hypermedia study guide might offer illustrated textbook content hyperlinked to web-based video and other content, glossary entries, and comprehension questions. Other hypermedia applications for the classroom include supported digital reading environments and lessons (Clark & Mayer, 2012). Hypermedia offers a powerful means to integrate curriculum content with instructional supports and address varied student needs. Digital texts can be enriched with a range of instructional supports such as vocabulary definitions, glossaries, translations, explanatory notes, background information, and instructional prompts. Each of these supports can take the

form of varied media. For example, vocabulary definitions might be presented as text, pictures, and/or animated graphics. Background information might be presented as a map, video, annotated bibliography with text and audio or illustrated timeline.

Hypermedia can support differences in students' ability to access specific media forms and differences in their literacy and media literacy skills; they also provide alternative means to engage learners. Using hypermedia, teachers can help a variety of learners, including English language learners, second language learners, and students with comprehension problems, to overcome important barriers posed by printed texts. Moreover, because the various supports are present as hyperlinks, students can access them individually, as needed, and on-demand.

In addition to offering new means to present curriculum content, hypermedia offers new means for students to demonstrate knowledge and skill. Using hypermedia design software, students can construct multimedia compositions that afford them a much greater range of possibilities than text. This is particularly important for students whose difficulty with writing might obscure their mastery of curriculum content (Clark & Mayer, 2012).

Computer simulations: Clark and Mayer (2012) explained that computer simulations are computer-generated versions of real-world objects (for example, a brain) or processes (for example, an election). They may be fully automated or interactive, eliciting user input. Computer simulations are a

means to “open up the walls of the classroom”, providing students with an opportunity to observe, manipulate, and investigate phenomena that are normally inaccessible an orbiting satellite or foreign culture using tools and materials that are not available in the classroom. In this respect, they provide an advantageous alternative to learning that might otherwise rely on lecture and printed text. Not only do simulations reduce barriers for students who struggle with these conventional media, they provide multiple models for skill learning, and can increase the immediacy and authenticity of learning content, which is advantageous to many learners.

Computer simulations can be used to increase content knowledge. For example, a simulated marine ecosystem can be used to teach ecology concepts. Simulations are particularly well suited to confronting students with their misconceptions about essential learning concepts and helping them to develop more accurate conceptual models. Simulations can also be used to develop skills. For example, simulated science experiments can be used to facilitate mastery of science process skills. Computer simulations are available on the web, as well as in software form.

Internet as teaching tools for e-Learning

Kling in Bupo (2014), defined internet as a new broadcast that can be used in any part of the world in a synchronized way, online or offline, get together text, sound video and provide services like E- mail, dates transfer, video conferencing among others. It is used in teaching, becoming more

usual and common tool in present and distance teaching. The use of internet as teaching tools help in research works, assignments and projects in business education. In the area of research it provides opportunities for scholars to communicate with one another through E mail, mailing list and new groups chart rooms. These resources enable communication between scholars as they can post research, assignments, books or journal list references to online materials (Yusuf & Onansanya, 2004).

The use of information and communication technology is growing rapidly in colleges and universities as it is in the business world. One technology whose use is perhaps growing most rapidly of all is the Internet. The Internet by its nature provides access to a wide variety of data in many different formats produced by people of widely varying interests and goals from many sources located around the world (Hawkins, 2014). The sheer volume of information available may also affect the faculty and students because of the time it takes to find desired resources.

Colleges and universities are in the business education, not technology, and their primary resource is their faculty. Faculty are using the internet in increasing numbers, but there is no clear indication yet about the impact of Internet use on faculty teaching, research, communication, professional development, personal productivity, social networks, and the way they fulfill their organization’s mission (Yusuf & Onansanya, 2004). The internet offers various opportunities for information access and

information sharing which are affecting faculty members work and personal lives, For example; communication, professional development, social communities and research.

Communications: Electronic discussion groups for almost any discipline are available via the Internet. These discussion groups can facilitate the rapid exchange of information, ideas, and opinions (Sophia, 2013). Some researchers believe electronic journals might provide ways to facilitate informal communication processes so that original ideas can be generated and refined, and through which preliminary information about research is disseminated (Hawkins, 2014). Many new organizations are disseminating international, national, local, and specialized news using the Internet. This can allow people to read about events in foreign countries as easily as events in their native countries.

Professional Development: Electronic publishing and electronic books provide easy access to the text of articles or entire books for research or classroom use (Sophia, 2013). Many graphics or sound files can be copied electronically, played, printed and used for teaching, research resources, and for professional development. In some fields the most current information is distributed electronically. There are some hazards for authors in electronic publishing. The issues of who owns the rights to electronic versions of books, articles, and pictures, whether royalties should be paid, and, if so,

how much royalty to pay, are big concerns with many authors and publishers today.

Social Communities: Students need to "inhabit the relevant community" and get to know the real questions and why they matter. Knowledge communities are built on continuous conversation and interactivity which is now possible even with some participants at a distance by using newer technologies such as Multi-User Dimensions(MUDs), Object Oriented MUDs (MOOs), and annotation systems which allow participants to post, read questions and comments about documents (Hawkins, 2014).

Research: The ability to search electronically the catalogs of various libraries is valuable to faculty for research or teaching resources. On-line search software can facilitate faculty use of these resources Library access through computer networks can be vital to some people who had previously been denied the use of a library because of their handicaps (Hawkins, 2014).

The shifting paradigms in academia according to (Sophia, 2013) noted that Internet represents for academics a mechanism for overcoming the disadvantages to academic teaching which may arise from the under-representation of certain teaching disciplines in Australian Universities. The Executive Strategies Reports describes the major impact of networking on campuses as occurring in the area of interpersonal communications, but having the ability to foster a student-centered learning environment where

faculty act more like coaches than lecturers. This would be a major change in the way instruction is delivered and the way faculty work.

The following are internet teaching tools and its application for teaching and learning. They are as follows:

Electronic mail (E-mail): Nwosu (2004) noted that electronic mail (e-mail) is an internet tool popularly used in the field of education. Nwosu described e-mail as the exchange of text messages and computer files transmitted via communications networks such as the Internet. It is a system of worldwide electronic communication in which a computer user composes a message at one terminal that can be regenerated at the recipient's terminal where the recipient logs in. it is commonly abbreviated e-mail. It is a computer based form of sending and receiving messages via the internet. Users have their own e-mail account or use a shared account, which is quite common in the developing world (Hawkins, 2014).

Intranet: Is web based collaboration among members of the same group in educational system, intranet aids collaboration among staff and students of the same department, faculty or institution (Obinniyi & Siroyewum, 2007). It serves as a repository of academic materials and knowledge available for use by members of the same academic group. In intranet, collaboration is faster and cost effective with the removal of cost associated with internet connectivity.

Visual library: This is an interactive environment for creating and conducting simulated experiments; a playground for experimentation. This site provides access to a large volume of library resources (articles, Journals, books among others) and online reference services via internet (Zelick, 2013).

Face book: According to Eric (2008) is an online social networking service available for users (teachers and students) worldwide to become a registered user of the website. It can be used to exchange messages, post status updates and photos. Teachers and students in Nigeria may join common-interest user groups organized by schools or colleges across the world. User may create a personal profile, and exchange message users join common educational groups organized by workplace, school or college, or other characteristics and exchange ideas (Zelick, 2013).

Twitter: Is an internet online social networking service that enables teachers and students to send and read short 140 character messages called tweets (Dorsey, Williams, Stones & Glass, 2006). Registered teachers and students can read and post tweets, but unregistered ones can only read them. It helps the users to post-short 140-character messages known as tweets to the web and automatically follows the messages being posted by others.

Blog: According to Richardson (2006) is another internet tool that is used in teaching and learning. Blogs are very similar to that of online Chat rooms with the difference of time factor. Unlike chat the blogs are asynchronous

where the participants share text messages. Blogs can be created through different e-mail service providers that provide space for the Blogger's use, which is limited and restricted and is controlled by the service provider. In order for teachers and students across the globe to enjoy full freedom, they can create their own website which will allow them all the freedom like earning money on advertisements, marketing the website in various ways, use as much space as required (Mutum, Dilip, Wang & Qing, 2010).

Google Search: This means a web search engine owned by Google Inc and it receiving several hundred millions queries each day through its various services. Students can send a question through Google search and get instant answer (Gillmor, 2007).

Web 2.0: Web 2.0, is a phrase coined by O'Reilly (2005) refers to a perceived second generation of web-based interactions, applications and communities. It is considered to be inclusive of a shift from a World Wide Web that is read only to a Web that is being described as the Read Write Web (Gillmor, 2007). Instead of content that was for the most part static, we are now seeing the ability to remix content in different ways, in order to suit contextual needs. The Web is evolving to become more like an area for social and idea networking. Students negotiate meanings and connections within Web 2.0 social spaces or idea networks, exchange bits of content, create new content, and collaborate in new ways.

According to Harris and Rea (2012), the term Web 2.0 has been applied to a heterogeneous mix of the familiar with the innovative and emergent and as such can be considered problematic in a definitional sense. What must be considered here though is not the shifting ground in relation to definitional aspects of Web 2.0 but how the term is defined for the purposes of this exploration of its use within education and pedagogic possibilities? The authors states, “Ultimately, the label Web 2.0 is far less important than the concepts, projects, and practices included in its scope”. Presented here are some broad characteristics of a Web 2.0 web-site in order to further delimit the term for the reader; "network as platform"; delivering (and allowing users to use) applications entirely through an internet browser users own the content on a site and exercise control over it (O’ Reilly, 2005).

YouTube: As defined by Cloud (2006) is an online public communications site. The site allows for registered teachers and students in Nigeria and other parts of the world to upload, view and share videos. He maintained that YouTube makes use of Adobe Flash Video and Corporate Media Video. However, teachers and students who desire to use YouTube have to register online which is usually free. The teacher thereafter prepares the desired lessons including videos and upload online for the students to read. Anyone who goes to the site can view the lessons and videos that are posted on this site. The students also have the opportunities of having access to other relevant literature worldwide. YouTube is a popular video sharing website

where users can upload, view, and share video clips. YouTube has become an enormously popular form of web 2.0 new media. A recent article in Wired cites an average of 65,000 upload and 100 million videos viewed per day on YouTube (Godwin-Jones, 2007).

According to Godwin-Jones (2007) a typical YouTube webpage is usually made up of the following components:

i. the wide variety of video content including movie and TV clips and music videos, as well as amateur content such as video blogging and short original videos,
ii. unregistered users can watch most videos on the site; registered users have the ability to upload an unlimited number of videos,
iii. Flag – ability to indicate a video that has inappropriate content,
iv. Title - main title of the video,
v. Tags – keywords specified by the person who has uploaded the video
vi. Channels – relating to groupings of content,
vii. Related videos - determined by the title and tags, appear to the right of the video,
viii. Subscribe – registered users can subscribe to content feeds for a particular user or users,
ix. Comments – often not monitored can be provided by any registered user about a video uploaded,
x. be aligned with expected learning or performance outcome,

xi. reduce cognitive load,

xii. exclude superficial text or graphics,

xiii. be appropriate for target learner‘s learning literacy's,

xiv. Views – the number of times a video has been watched,

xv. Rating - videos can be rated by registered users.

According to Godwin-Jones (2007) YouTube is increasingly being used by educators as a pedagogic resource for everything from newsworthy events from around the world to slice-of-life videos used to teach students within an ESL (English as a Second Language) course. From instructional videos to an online space to share student authored content.

Wiki: According to Arreguin (2004) is another internet tool that is used in teaching and learning. Is a group of Web pages that allows users to add content, similar to a discussion forum or blog, but also permits others (sometimes completely unrestrictedly) to edit the content (Arreguin, 2004). What distinguishes wikis from blogs, discussion form, or other content management systems is that there is no inherent structure hard-coded: wiki pages can be interconnected and organized as required, and are not presented by default in a reverse chronological, taxonomic hierarchical or any other predetermined order. In essence, the wiki offers a vast simplification of the process of creating HTML pages, and thus is a very effective way to build and exchange information through collaborative effort.

According to Arreguin (2004) the following are some typical characteristics of a Wiki:

(a) where a blog is (usually) the writings of one person to be read by many, a wiki is a website that allows a user to add content, but also allows that content to be edited by any other user,

(b) they involve the creation of documents (individual pages as well as the entire wiki) without a detailed technical knowledge of HTML, they tend towards expressing ideas as relationships between pages, thus creating a network of interrelated topics,

(c) they are temporal, that is, the nodes (or interlinking textual references) change not according to time but by way of development within the evolving and edited text,

(d) they track the changes to individual pages over time, and

(e) provides a space where knowledge becomes networked (situated, contextualized) but remains ephemeral: it changes, and can be changed and mediated by the community.

Educational Benefits of Wikis: In essence, wikis offers an online space for collaborative authorship and writing. They are available online for all Web users or for members of specific communities, and include version control tools that allow authors to track the history of specific pages, and the history of their personal contributions. Using wikis, students can easily create simple Websites without prior knowledge or skill programming in HTML or current

software used for Website authoring, thus eliminating the time overhead necessary to develop these skills. Also, as more organizations adopt the wiki for internal and external collaboration and information, work with wikis at the tertiary level builds crucial skills for the workplace.

A wiki also offers the ability to interact with an evolving document over time. It allows teachers and learners to see the evolution of a written task, and to continually comment on it, rather than offering comments only on the final draft. Considering students busy schedules, a wiki can also be very useful for tracking and streamlining group project.

Blended Learning as teaching tools for e-Learning

Blended learning is a formal education programme in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path or pace. While still attending a “brick-and-mortar” school structure, face-to-face classroom methods is combined with computer-mediated activities. This is a combination of multiple approaches to teaching and learning; that is, using a combination of face-to-face interactive activities with electronic instructional materials in curriculum delivery (Bandon Hall Research, 2011).

Blended learning (b-learning) has formed an answer to benefit, effectiveness and efficiency uncertainty of pure form of e-learning. It is referred to as distributed, multimodal learning (Duhaney, 2004; Gibson, 2006 in Keengwe, 2012) and is described as the combination of classroom

instruction with self-paced online materials (Vencatachellum & Munusami, 2006). Blended learning mixes various event-based activities, including face-to-face classrooms, live e-learning, and self-paced learning. There is often a mix of traditional instructor-led training, synchronous online conferencing or training, asynchronous self-paced study. Blended learning appears to provide strong support for instructors looking to create learning settings based on strong learner-centered modes of delivery. The blend often depends on the level of face-to-face communication that can be provided for students **(**Chen, 2012). Online distance courses (e-Learning) are based on the compromise of the student with his/her learning process and are centered in the intensive use of online courses, while blended learning or mixed courses mainly use videoconferences and attending classes where the responsibility rests on both the professor and the student by Hughes (2014).

Graham and Dziuban (2011) defined blended learning as a flexible from of e-learning that comprises a proper blend of all components of e-learning and all form of face-to-face interaction or tutoring. Blended learning is seen as an aspect of e-learning refers to learning encounter in which face-to-face or the traditional teacher-learner instruction is combined with technology mediated instruction. The teacher can present parts of a course using face to face mode while the learners do the other aspects of the course online. Learners can access electronic format of the module online, learn from each other collaboratively online and offline as well as engage in

interactive face to face learning. Blended learning may also involve the use of computers in a physical classroom along with face to face instruction. Bandon Hall Research (2011) quotes Thomson study as recorded that blended learning was “30 percent more accurate than traditional teaching and learning alone” while “blended learning performance on the real-world task was 41 percent faster than traditional teaching and learning alone”. Also Graham and Dziuban (2011) as mentioned in Garrison & Kanuta (2004), Graham (2006) including Graham and Robinson (2007) are some of the researcher whose findings indicates that combining face-to-face instruction and technology mediated instruction can transform learning.

Graham and Robinson (2007) explained that some of the advantages of blended learning are to exposes learners to diversified learning tools and experiences. Apart of promoting individual learning instruction, blended learning takes care of different learning style. Also blended learning enhances collaboration and prepares the learner for life in the society. It also provides a means for learners to acquire learning access to ICTs. It help to analyze the instructional objectives to identify and put in segments the required knowledge and competencies. Consider the nature and location of the audience. It helps to study the segments to know which ones are more suitable than the others for online learning and those to be learnt offline. It chooses the medium such as traditional classroom and hands-on experiences or any form of online training.

According to Graham and Dziuban (2011), six forms of blended learning which can be incorporated successfully into the classroom are as follows: Face-to-face Driver, Rotation, Flex, Online Lab, Self-Blend and Online Driver.

Face-to-face Driver: is a blended learning model in which teachers deliver most of the curriculum. Teachers lead the class in a lecture following an established protocol taking precedence and technology being a secondary thought. However, they also produce online resources to supplement or revise course material which students can study at home, in the classroom or in a technology lab.

Rotation: In the Rotation model of blended learning, within a given course, a student rotates on a fixed schedule between learning online in a one-to-one, self-paced environment and sitting in a classroom with a traditional face-to-face teacher.

Flex: Flex model of blended learning features an online platform that delivers most of the curricula. It's the model where most of the learning is done online and the face-to-face model exists to provide on-site support for a flexible and adaptive, as required basis through in-person tutoring sessions and small group sessions.

Online Lab: Online lab is a model of blended learning that characterizes programs that rely on an online platform to deliver the entire course but in a brick-and-mortar lab environment. The entire course and teaching are done

online. Teachers interact with students through pre-recorded videos, audio and video conferences or discussion forums and e-mail.

Self Blend: The Self - Blend model is a fully individualized approach that allows students to choose to take one or more courses online to supplement their traditional school's catalog. Maximum part of the learning is done online, but the student will still attend face-to-face classes.

Online Driver: Online Driver involves online platform as well as teachers to deliver the curricula. Students work from remote locations most of the time and come to school for optional or required face-to-face classes.

The following are blended learning teaching tools and its application in teaching and learning. They are as follows:

Computer/Laptop: Computer is a machine that can be programmed to accept data input, process it into useful information (output) store it for as long as required. They are the modern of all machines that process, analyses. Store, Supplies and retrieve information instantaneously (Nwosu, 2004).

A Plasma Screen: According to Salami (2009) opined that these machine is a large widescreen monitor, from 32" to 84" in size, which has the advantage of being very thin so that it can be hung on walls. Plasma screens can be used with computers and video recorders/DVD players among others. A plasma screen overlay is a device that fits over a plasma screen. Plasma screens that have an interactive overlay on them work exactly the same way as interactive whiteboards. The advantage of using a plasma screen is that a

shadow is not cast by the presenter, unlike front projection interactive whiteboards. Plasma screens also have a lifespan of around 30,000 hours use. Projectors used with 28 interactive whiteboards have an average of 2,000 hours lamp life and lamps for most projectors are costly to replace. The biggest disadvantage with the plasma screen is the screen size and the high price. However, Plasma screens give a far neater finish in a boardroom environment and far superior pictures when using video recorders, satellite systems or DVD players to show television or video.

Power-Point: According to OECD (2005), is a closed source commercial presentation programme developed by Microsoft. It is part of the Microsoft, office suite and runs on Microsoft windows and Apple‘s mac OsX operating system. It consists of number of individual pages or slides. The slides analog is a reference to the slide projector. Slides may contain text, graphics, and other objects which may be arranged freely. It facilitates the use of consistent style in a presentation using a template or slide master. The presentation can be printed, displayed live on a computer or navigated through.

Educational Software: This is programmes and games that teach the user or provide drills to help memorize facts. Educational software is diverse, and can teach anything from computer-related activities like typing to higher education subjects like business education (OECD, 2005).

Word Processing: According to Olsen (2005) the commonest ICT tool for creating and manipulating text is the word-processor. A word-processor is an extremely useful piece of software, enabling teachers to produce professional-looking documents that can be printed and used as handouts or worksheets for learners. The worksheets can also become electronic worksheets and they can be enhanced with pictures and sound and exported into other applications such as PowerPoint. The following are some essential skills needed to be acquired for using word processing as:

i. Opening a new document
ii. Saving a document
iii. Editing a previously saved document
iv. Basic keyboard skills
v. Copying, cutting and pasting text
vi. Setting paper size and margins
vii. Setting typeface and font
viii. Using color, italics and bold
ix. Setting up tables
x. Setting and using tabs
xi. Setting up frames and borders
xii. Entering foreign characters
xiii. Inserting pictures into a document Copying and pasting from another application, e.g. text from a Web browser, headed Saving

Web pages and selections from Web pages (Alessi & Trollip, in Bupo, 2013).

Virtual Classroom: This is a teaching and learning environment located within a computer mediated communication system. It is also a learning environment where teacher and student are separated by line or space or both and the teacher provides course content through course management applications, multimedia resources, the internet, videoconferencing among others, students enrolled in the virtual classroom have opportunities for immediate teacher feedback (Sharples, 2007).

Telecommunication as teaching tools for e-Learning

This means transmission of information over significant distances to communicate, in earlier times, telecommunications involved the use of visual signals, such as beacons, smoke signals, semaphore telegraphs, signal flags, and optical heliographs, or audio messages via coded drumbeats, lung-blown horns, or sent by loud whistles, for example. In the modern age of electricity and electronics, telecommunications now also includes the use of electrical devices such as telegraphs, telephones, and teletypes, the use of radio and microwave communications, as well as fiber optics and their associated electronics, plus the use of the orbiting satellites and the Internet (Horton & Horton, in Bupo, 2012). Santrock (2007) express that telecommunication is changing not only the way students learn, but also when they learn, where they learn and who teaches them. Through

telecommunication, the typical classroom is no longer bound by four walls, but open to include interaction among students, teachers and experts from around the world. Learning experiences can be shared from many varied sources.

In another prospection, Ziewer and Seidi (2011) highlighted some of the advantages students and schools can derive through the use of telecommunication as includes:

a) Builds on existing technology
b) Promotes collaboration and cooperative learning
c) Improve communication skill
d) Enhances multicultural education
e) Increase access to experts
f) Eliminates phone tag
g) Provides current information
h) Reduces isolation
i) Increases self esteem
j) Supplies faster communications

The following are telecommunication teaching tools and its application for teaching and learning. They are as follows:

Satellite Cable: A cable connection uses the same coaxial cable used for television signals to send and receive data to and from the Internet. A cable modem acts as the interface between the computer and the coaxial cable. The

computer is connected to the modem either through USB or 10 bases -T Ethernet. If using an Ethernet connection, the computer must have a NIC installed where the NIC connects to the modem through an Ethernet cable. If the computer has a USB port, it can connect to the modem via a USB cable as with DSL, connection speeds depend on the cable provider within the particular country. In OECD countries, the advertised downstream connection speeds range from 128 kbps to 2 Mbps (where speeds of 256 kbps and 512 kbps are the most common) and the advertised upstream connection speeds range from 64 to 768 kbps (where a speed of 128 kbps is the most common) (Williams & Sawyer, 2015).

Optical Fiber: Optical fibers provide a huge amount of bandwidth that is ideal for high-performance applications such as videoconferencing or web-based applications that rely on a large amount of graphics (Rusten and Hudson, 2012). As mentioned previously, telephone companies provide these high capacity lines. They are typically installed for institutional customers such as hospitals, schools, and businesses (Rusten and Hudson, 2012). The actual broadcast can be achieved using geo-stationary satellite, microwave, cable, or fiber optics. There are also commercial suppliers that provide the infrastructure and programme development services for interactive television. Learners usually congregate at an interactive television site that has all the required equipment (such as satellite receivers,

teleconferencing tools, and television monitors or projection systems) to receive instruction (Stevenson, 2011).

Television: In this context, interactive television refers to instruction occurring over broadcast television. It allows learners to receive live television instruction remotely, away from the actual instructor. The instructor(s) are located at a broadcast studio and the learners view the instructor(s) on a television monitor. Interaction is provided by one or more additional components. They can ask questions and/or provide feedback to the instructor through a number of mechanisms that can be used either independently or in combination (Stevenson, 2011). Typically, an audio conferencing mechanism is used for real-time interaction. Additionally, a response pad can be used to link learners to a computerized instructor console in the broadcast studio (Stevenson, 2011). There are other asynchronous aids that can also be used such as e-mail and fax.

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Mobile Phones: A mobile phone, cell phone or hand phone is an electronic device used to make mobile telephone calls across a wide geographic area, served by many public cells, allowing the user to be mobile. By contrast, a cordless telephone is used only within the range of a single, private base station, for example within a home or an office. A mobile phone can make and receive telephone calls to and from the public telephone network which includes other mobiles and fixed-line phones across the world. It does this by connecting to a cellular network provided by a mobile network operator (Siemens, 2005).

In addition to telephony, modern mobile phones also support a wide variety of other services such as text messaging, MMS, e-mail, Internet access, short-range wireless communications (infrared, Bluetooth), business applications, gaming and photography. Mobile phones that offer these more general computing capabilities are referred to as Smartphone‘s. Siemens (2005) outlined the following educational benefits of using mobile phone in classroom instructions as:

a) Student response polling or pop quizzes (no need to invest in additional devices).
b) Use sms to find definitions, currency conversion, math equations, translation and more.
c) Use as an internet browser to access endless information
d) Research

e) Read news articles and current events

f) Read books

g) Download and use education programs such as Google Maps and use as GPS

h) Use as a digital or video camera to accompany school projects, publishing.

i) Educate students on appropriate and acceptable social use.

j) Use the voice technology to share engaging lectures or lessons.

Podcasting: According to Stevenson (2011), is one of the newest applications of technology within the past year that is just beginning to impact mobile learning. Podcasts are typically audio or video files that may be broadcast over the Internet. An RSS (Really Simple Syndication) file in a standard XML format serves as an index to all of the episodes of the particular podcast. Subscribing to a podcast requires the use of an aggregator program that will automatically download individual episodes as they become available. The number of faculty at colleges and universities posting their lectures as podcasts is on the rise, as the popularity and availability of mobile music players, such as iPods increases. An informal survey of approximately sixty first-year students in the Technology Intensive sections showed that more than half owned iPods or other MP3 players, in addition to their new Pocket PCs and laptops.

The use of podcasting in higher education is often a one-way communication, the instructor creates the podcast, and the students download and listen to it. Creating digital audio is relatively easy and inexpensive; most colleges already have server space for storage; there are no additional costs for duplicating physical media such as tapes or compact discs, and students are already using the same technology to download lectures as they do to download other music or podcasts in a just-in-time fashion. Chan and Lee (2005) have found that podcasting is an effective out-of-classroom support mechanism to supplement classroom learning.

Videoconferencing: Videoconferencing allows participating individuals in different locations to see and hear each other in real-time through videoconferencing equipment (Stevenson, 2011). Dixon (2010) states that it is much more like using the telephone, with the added feature of being able to see the person you are talking to older videoconferencing technology uses ISDN or leased telephone lines at high hourly rates and the installation cost of this type of system is expensive. It is also a more rigid environment that requires special room set-up, advanced scheduling, and a professional operator (Dixon, 2010). The more recent videoconferencing technology, however, uses the Internet as the transmission infrastructure, thus decreasing the installation and usage costs. It also has the same advantages as the Internet: flexibility, convenience.

Computer aided assessment: Computer-aided assessment (CAA) according to Lambert (2014) is a common term used for online assessment, although there are synonyms such as computerized tests (Alessi & Trollip, in Bupo, 2012), online testing (Maurice and Day, 2004), computer -assisted assessment (Conole and Warburton, 2005), online examinations (Khare and Lambert 2008), electronic assessment (Sanga, 2008), online evaluation (Nelson, 1998), computer-administered tests (Hawkins, 2004) and computer-based testing (participants in this research). According to Lambert, (2014) Students are presented with a Variety of questions online to which they respond and which are marked electronically. The results are sent to a database where they can be stored and accessed by lecturers or presented back to the student immediately. Facilities such as detailed feedback and the ability to take a test a number of times are available in some systems (Maurice & Day, 2014).

According to Lambert, (2014) CAA supports some of the following question types:

i. Multiple choice questions (MCQs): these display a list of answers from which learners choose by picking one option only one alternative from the list provided picking multiple options one, some, all, or none of the alternatives can be selected from the list.
ii. Fill in the blank questions: learners submit the missing word(s) in a sentence/paragraph or missing items in a table.

iii. Short answer questions: these require the learner to type in the answer to a question, typically short answers to very specific questions.

iv. True/False questions: learners decide between two alternatives stating whether a statement is true or false.

v. Hotspot questions: the learner is asked to select an object or an area in a graphic by using the mouse.

vi. Drag and drop questions (also called move-object questions): these questions test the ability of learners to assign items to the correct category or to arrange parts of a system into a whole by moving icons, images, or textual labels to specific locations on the screen.

vii. Matching list questions: learners are required to specify which items in a list correspond with items in another list. These lists may include text or graphics.

viii. Simulation questions: these require the users to perform a highly interactive task.

Maurice and Day (2014) listed the following as advantages of CAA over manual assessment as:

(a) Online assessments are available on demand.

(b) Marking (grading) of assessments for large numbers of students is more efficient when done by automate means.

(c) Feedback to students can be delivered instantly.

(d) A large variety of questions can be developed over time to form a question bank. Questions can be randomly generated per assessment, using a generalized algorithm.

(e) Online assessments can be integrated with other online media resources.

(f) The computer cannot be judgmental, so learners need not fear subjective human criticism.

(g) There is wide variety in the kinds of questions that can be offered in a single assessment.

Lambert, Maurice and Day (2014) listed the disadvantage of Computer Aided Assessment as follows:

i. Some types of questions cannot be marked automatically.

ii. Data security is problematic; in some cases, the identity of the test taker cannot be determined with certainty.

iii. Students with poor IT skills or who dislike the delivery method may be disadvantaged.

iv. Students need facilities where they can access the technology to take the assessment. This is not a problem in contact-learning, where institutions have computer laboratories, but can be a factor in the case of isolated learners doing distance-education.

v. Accessibility for the physically challenged must be considered, since many online assessment tools have limited features for the disabled.

vi. Testing programs should be user-friendly and have a high level of usability. If learners struggle with the mechanics of the software, they will be distracted from concentrating on their responses.

vii. For the educator, it is time-consuming and difficult to write MCQ questions that assess higher-level think.

Training and retraining of business educators as a teaching tool for e-Learning

Business educators are the people abreast with the appropriate level of competence that is capable of turning out into the society students who have acquired literacy, numerical, manipulative and communicative skills (Ogbiji, 2006). Business educators' teaching profession is practised within the confines of school organizations. The business educators must first receive adequate training and retraining in order to enhance his or her competence. Thus, the extent to which the business education achieves its aims and objectives is based on the quality of training and retraining programmes the business educators are exposed to (Ogbiji, 2006). The need for training and retraining of business educators therefore, becomes imperative for managers of school, organizations, as it is in other private and public organizations. This is because it is only business educators who possess the required knowledge and skills that can prepare its students adequately (that can produce educated business students equipped with expected norms and values functional in the society).

Therefore, training is the way instruction is conveyed; it supports learning, which is our internal ways of processing information into knowledge. But since there are many way we can learn, an effective learning strategy must transcend training (Rosenberg, 2011). Hornby (2015) defined training as the process, the skills that you need to do job. Retraining on order hand means to learn, or to teach somebody a new type of work, a new skills, among others.

Training is the process of developing skills, habits, knowledge and attitudes in employees for the purpose of increasing the effectiveness of employees in their present positions as well as preparing them for future positions in the service. It is the systematic and planned instruction and development activities to promote teach (Armstrong, 2004). Training also refers to learning activities directed towards acquisition of specific knowledge and skills for the purpose of an occupational task. The occupational task of concern here is teachers teaching profession. The focus of training is the “task” or the “job” (Cole, 2002). Retraining on the other hand involves providing additional training to people especially professionals who were already trained, in order to further enhance their ability in terms of competence to handle contemporary challenges or changes in their professional areas. Creemers (2014) and Haron (2015) posited that training of teachers prepare them for the improvement of the educational quality, pedagogical techniques and school management. Ejue (2002)

explained that retraining otherwise referred to as “refreshers programme” or “post-training” is concerned with both skills which an employee has been trained with and also with new innovative skills.

Training can be delivered in many ways, in the classroom, over the phone, through a computer or via satellite, to name a few. And a variety of instructional approaches are used to get the job done, including lecture, case study, simulation, drill and practice, laboratories, and small group work. In the end, training has four main elements:

a. Intent to enhance performance in a specific way typically derived via needs assessments and reflected in learning goals and instructional objectives.
b. A design reflecting the instructional strategy that is best suited to the learning requirement and the learner’s attributes, as well as the measurement strategy that gauges the effectiveness of the training.
c. The means and media by which the instruction is conveyed, which may include the classroom, a variety of technologies, independent study, or a combination of approaches.
d. In high accountability situations, a more formalized assessment or certification capability (Rosenberg, 2011).

Therefore, training and retraining of business educators can be conducted in different programme such as: conference, seminars, workshop, and in-services, among others.

In-services: Nakpodia (2008) defined in-service training programme as a process for continuous up-dating of teachers' knowledge, skills and interests in chosen field. It is a means for continues professional growth, which encourages the extension of technical assistance by teachers educators. In-service teacher education is an integral part of staff development programme. According to Aitken (2004) in-service training is ongoing training of practicing teachers, which is typically arranged by school boards that employ them. In-service training of teachers is the key mechanism to equip schools to respond to so many challenges. The objectives of in-service training programme is to equip teachers to deal with curriculum and other changes and the importance of in-service programme is to enhance teacher performance which in turn brings about improvement in students achievement, and more immediate impact on the effectiveness of the teaching workforce as a whole.

Conferences: This means the most general term to indicate a meeting for discussion, most commonly adopted by associations and organizations for their regular meetings. It is usually associated with the most traditional type of presentation, that is, papers followed by questions, for example Annual Conference, Biennial Conference among others. Conferences can be in different form which includes; seminars, workshop, among other (Cole, 2002).

Seminars: In the first meaning of this term, refers to a group of students studying under a professor with each doing research and all exchanging results through reports and discussions. Its second definition: 'debating special issues' preseves the conversational character of the term 'seminar'. In supporting above view, Ejue (2002) states the purpose of a seminar is to teach something. A seminar is an academic class or instruction that is offered by a professional organization. A seminar can also be a course in college. A college seminar is typically related to the students' area of study and is an intense class. Most often a seminar is an event that is taught by experts in the field and sometimes is about investing or self improvement and not necessarily educational.

Workshop: Means a brief intensive educational programme for a small group of people that focuses on techniques and skills in a particular field. In academia, it is adopted to describe meetings reserved for small groups of specialists who come together for concerted activities or discussion.

Relevance of e-Learning Tools in Business Education

Worldwide Learn (2009) identified eleven factors that contribute to the use of e-learning business education as:

a. Enhanced and consistent mode of delivery of knowledge,
b. Easy and regular administration of individual and group assessments,
c. Awareness of the instruction,
d. Unhindered interaction among teachers and students,

e. Collaboration with other institutions like universities. This collaboration decreases the digital divide between institutions in developing countries and developed countries,
f. To support the isolated persons, to value their whole creative potential and to ensure the premises for a fulfilled life,
g. To reduce the gap between individuals or groups of individuals,
h. Wider access to education,
i. The capacity to provide a big volume of information,
j. The possibility of real and complete individualization of the learning process,
k. Intercultural educational cooperation.

Problems encountered in the use of e-Learning in business education

Electronic learning is one of the instructional modes that any nation can use to prepare for competition in a fast changing world by promoting authentic, independent and interactive form of education. It is the type of education that can develop in learners not only the ability to be self-propelled and self-directed in learning but also the ability to acquire the technical, intellectual and social skills that are very essential for active participation in a knowledge society. It is an indispensable learning approach for preparing the 21st century learners for effective life in a technology dominated society. The revolutionary impact of e-learning on all sphere of the society has not spared the business educational sector. The use of new

knowledge required a more educated population. e-Learning is playing a major role in the acquisition and diffusion of knowledge which are fundamental aspects of the education process. e-Learning is offering increasing possibilities of codification of knowledge about teaching activities through being able to deliver learning cognitive activities anywhere at any time (Jenkins & Hanson, 2003). Tertiary educational institution has always been at the forefront of new scientific discoveries and innovations brought about by the activities of teaching, learning and research. Electronic learning is becoming increasingly prominent in tertiary education. Electronic learning being delivered on the platform of ICT infrastructure promise to widen access to education and improve quality of education at reduced cost.

Despite the potentials of e-learning tools as teaching tools to enhance the activities of teaching, learning, research, report showed that the application of e-learning in Nigerian territory institutions is less than five percentages (Guardian. 2007). The reasons to determine the extent of utilization of e-learning tools as teaching strategies are due to the following challenges.

Infrastructure: Tertiary institutions in Nigeria lack adequate e-learning infrastructure to effectively tap into the opportunities offered by the cyberspace personal computers (Pc) which are available in most Nigerian tertiary institutions but they are not readily accessible to students because of the low personal computer (Pc): Student ratio which is averagely put at about

1 to 40. In most cases the basic software needed for practical works are not available and where they are available, they are not accessible because of the low ratio: there is also lack of CAL and often specialized software to support some areas of teaching in business education. Internet connectivity is available in most tertiary institutions in Nigeria but in most cases the bandwidth subscribed to (which determine speed of access) is too small to support any meaningful academic activity during peak period. Some institutions have subscribed to virtual library sites whereby members can access electronic academic materials such as journals. Collections on specialized fields, but the currency of the information on the CDs cannot guarantee as no effort is made to update them. Whereas e-learning infrastructure like multimedia projectors are available in Nigeria tertiary institutions to support teaching, learning and research, other infrastructure like interactive while boards and mobile devices are lacking.

Funding: This is the major challenge confronting the acquisition and provision of e-learning in Nigerian tertiary education because most institutions solely rely on their proprietors for findings and the bulk of such fund goes to servicing the overhead cost.

Since no clear sustainable business model has yet emerged for commercial provision of e-learning and failures have been more numerous than success. OECD (2005) stated that institutions are not willing to invest the little fund available to them on e-learning project. Onasanya, Shehu,

Oduwaire & Shehu (2010) listed some limitations of e-learning based instruction in the classroom as:

i. Lack of sufficient computers system to round the students due to exorbitant costs.
ii. Lack of adequate personnel to train students on the use of e-learning tools in schools.
iii. Electricity power supply and its stability.
iv. Inadequate and inflexible curriculum to incorporate the use of e-learning for instruction in schools.

Resistance to Change: There is concern of faculty members not willing to take the soft approach to teaching and learning rather they stick to the traditional hard approach. Report form OECD (2005) gave reasons while facilities resist e- learning as:

a. That e-learning development with its standardization aspects, might conflict to some extent with the professional outline of academic, based on autonomy and reward system often based on research.
b. Concern about intellectual property right and shared rights between faculty, institutions and technologies.

Inadequate Skilled Manpower: Inadequate ICT technical personnel are a major problem in Nigeria tertiary education. The reason for this can be ascribed to the lucrative job opportunities available to ICT professional

outside the academics. The situation has made institutions rely on commercial private ventures to provide support for the few ICT facilities available. The support offered is in most cases are commercial and lack academic content (OECD, 2005).

Policies: Government should adopt sustainable policies that would make it possible for business education students and educators to have easy and cheap access to ICT equipment, tools and packages. In this connection, business education programme or curriculum has to be redesigned to incorporate e-learning and e-teaching (Thom-Otuya & Ubulom, 2007).

Lack of Sufficient Facilities: Most Nigerian tertiary institutions where business education programme is implemented generally lack ICT tools and peripherals. For examples, knowledge of, and ability to use ICT tools can only be possible when there are computers for use by those concerned (Chinlen, 2013). In most institutions there are no computers and where there are, they are grossly inadequate. It is, therefore necessary to provide these facilities in sufficient number and quality.

Prohibitive Cost of Equipment: If the desired objective of enhancing e-learning in implementing business education is to succeed, the cost in these domains have to be deliberately reduced or else Nigerian will continue to lag behind in the shift to electronic learning rate and level (Chinlen, 2013).

Empirical Studies

In this section, empirical studies that have some relationship with this present study are hereunder reviewed. Azubuike and Offordile (2012) carried out a study on strategies for improving the use of electronic teaching and learning (e-Learning) in agricultural science and home economics in tertiary institutions of Anambra State-Nigeria. The purpose of the study was to identify the strategies for improving the use of electronic teaching and learning in agric science and home economics in tertiary institutions of Anambra State. A descriptive survey research design with a sample of 30 lecturers and 150 students of agricultural science and home economics education, through simple random sampling were used. The questionnaires were the instrument used for data collection. Data obtained were analyzed using mean and standard deviation to answer the research questions, while the null hypotheses were tested using t-test statistics. The findings of the study revealed that most schools lacked some of the e-learning devices and the problems facing the use of e-learning network in teaching included poor power supply, financial problems, low computer literacy level, low quality and expensive nature of VSAT connections among others. The strategies that would be adopted to improve the use of electronic teaching and learning included amongst others training of teachers in ICT, allocation of more fund for e-learning, schools to source out fund, and telephone lines to be digitalized.

The study is in relation with the present study as both studies aimed at strategies for improving the electronic teaching and learning, and both used questionnaire as data collection instrument. The different in that of Azubuike et al focused on strategies for improving e-Learning in agricultural science and home economics in tertiary institutions of Anambra State, while the present study focused on extent of utilization of e-Learning tools as teaching strategies for by business educators in tertiary institutions in the South East, Nigeria.

Inije, Utoware and Kren-Ikidi (2013) carried out a study to determine the extent of utilization of e-learning technologies in business education instructional delivery in colleges of education in Delta State of Nigeria. Descriptive survey research designs with a sample of 45 lecturers of business education in the colleges of education, through simple random sampling were used. A structured questionnaire was used for data collection using a five-point rating scale. Data obtained were analyzed using mean and standard deviation to answer the research questions, while the null hypotheses were tested using t-test statistics. Findings revealed that e-learning technology resources were not extensively utilized in teaching business education in the colleges of education due to many challenges which include shortage of qualified staff with e-learning application, lack of e-learning facilities and infrastructure in colleges of education. Training and

retraining of lecturers to acquaint them with the development of new technologies, among others, were recommended.

The study is in relation with the present study because both studied the extent e-learning are used for instructional delivery in business education, and also used questionnaire as data collection instrument, using five-point rating scale, and t-test as tool for testing the hypotheses. The different in that of Utoware et al used simple random sampling while the present study has no sampling.

Nwaosa and Okolocha (2013) carried out a study to determine the extent of utilization of e-learning technologies by business educators in tertiary institutions in Edo and Delta states of Nigeria. Five research questions were raised and guided the study, while three hypotheses were formulated and tested at 0.05 level of significance. Descriptive survey research design was employed for the study. A total of 173 practicing business educators selected from the universities, polytechnics and colleges of education in Edo and Delta states were used for the study. The data collection instruments were 56-item questionnaire that was structured on a five point Likert type rating scale. The reliability coefficient of the instrument were further computed using Spearman Brown Prophecy' Formula which yielded the scores of 0.50, 0.88, 0.87, 0.73 and 0.86 respectively. The data collected for the study were analyzed using mean and standard deviation for the five research questions, while the t-test and One-

way Analysis of Variance (ANOVA) were used for testing the null hypotheses. The major findings that were gotten from the study include the following:

a. Business educators rarely utilized e-learning technologies such as; hard ware, Software and internet technologies in teaching business education courses in tertiary institutions in Edo and Delta States of Nigeria.
b. Gender has no effect on the extent to which business educators in tertiary institutions in Edo and Delta States of Nigeria utilized internet facilities in teaching business education courses in their various institutions.
c. The extent of utilization of e-learning technologies by business educators in tertiary institutions in Edo and Delta States has no significant difference on the institution type and ownership.

Based on the findings of the study, it was recommended that, the federal and state governments should make adequate budgetary allocation for the provision of computers, internet and other telecommunications technologies in tertiary institutions in Nigeria. While business educators should, as a matter of urgency, update their knowledge in e-learning technology. The implication of this is that, inadequate exposure and provision of e-learning equipment and facilities will lead to the production of

graduates who may not likely be practically exposed where skill acquisition is highly demanded. Finally, suggestions for further research were given.

The study is in relation with the present study because both dealt with business educators in tertiary institutions. They differ in the sense that Nwaosa et al used Spearman Brown formula while the present study used Karl Pearson formula for Correlation Co-efficient to determine its degree of reliability. Nwaosa et al used t-test and One-Way Analysis of Variance (ANOVA) in testing hypotheses while the present study used only z-test for testing its hypotheses.

Nwana (2012) carried out a study to determine challenges in the application of e-learning in secondary schools in Onitsha North LGA, Anambra State, Nigeria. Two hundred and twenty-five (225) teachers in public secondary schools were used as the sample for the study. A self-developed instrument on the availability and use of e-learning materials were used for data collection. The instrument contained 25 items. The reliability co-efficient of the instrument stood at 0.88. The data collected were analyzed using frequency distribution and mean. The findings revealed: acute shortage of e-learning materials such as on-line/internet-connected computers, e-mail facilities, multimedia television, multimedia computer and digital library. It was also revealed that the few available ones such as off-line/ordinary computers, scanner, printer and ready-made courses ware were not utilized because the teachers lacked the knowledge and skills of computer

application. The only material identified as available and in use was the telephone. It was recommended among other things that, the government should embark on a massive computer training programme for teachers. Teachers should be trained and retrained through in-service training, seminars, workshops and conferences for acquisition of the knowledge and skills needed for e-learning application in secondary schools in Nigeria.

The study was in relation with the present study because both dealt on problems facing e-learning in educational sector as lack of provision of e-learning materials in the institution. They differ in the sense that the populations of the study in Nwana's research were teachers in the public secondary schools in Onitsha North of Anambra State while the populations of the present study are business educators in publicly and privately owned colleges of education and universities in South-East, Nigeria.

Summary of Review of Related Literature

The foregoing has tried to reveal the related literature on extent of utilization of e-Learning tools as teaching strategies by business educators in tertiary institutions in south-east Nigeria. The review covered concept of utilization, e-learning and e-Learning tools, strategies, and business educators. The theoretical framework used for the study is constructivist learning theory and behaviourist learning theory. The theory highlighted the importance of individual learner's involvement in any learning process. The review has unraveled that if e-learning tools as teaching strategies in

business education are efficiently and effectively utilized by business educators for teaching, learning will not only be active and collaborative, but will equally result to lifelong learning, but also learner centered, thereby considering the need of the learner both in the present and future. The theoretical studies were discussed under the following heading: multimedia as teaching tools for e-Learning, internet, blended learning as teaching tools for e-Learning, telecommunication as teaching tools for e-Learning, and training and retraining of business education as teaching tools for e-learning. The relevance of e-learning tools was mentioned, and problem encountered in the utilization of e-learning tools as teaching strategies were vividly explained.

The review of empirical studies covered studies on extent of utilization of e-Learning tools as teaching strategies for e-Learning in business education. Four empirical studies were reviewed, compared and contrasted. Therefore, in all the literature reviewed, no work on the topic of the current study was seen to have been carried out, focusing on public and private Colleges of Education and Universities in South East Nigeria.

There is therefore, insufficient knowledge and a missing link in the electronic learning in higher institutions of learning in south-east Nigeria, which requires urgent attention. It is this existing gap in knowledge and a missing link in the electronic learning that the present study determine to take a study on the extent of utilization as an instructional process in

business education. The result of the study would equally aid business educators as well as the students to realize the importance of the above mentioned teaching tools for e-Learning on their academic input and as they begin to utilize them in carrying out teaching and learning in business education, research work, projects and presentation of data.

CHAPTER THREE

METHOD

This chapter presents the procedure used in the study. The presentation was made under the following sub-headings: research design, area of the study, population of the study, instrument for data collection, validation of the instrument, reliability of the instrument, method of data collection and method of data analysis.

Research Design

The study adopted a descriptive research design. A survey research design was adopted for this study because it was oriented towards ascertaining and establishing the status quo, facts or pieces of information concerning the population. Nworgu (2006) defined survey research as the design in which group of people or items are studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group. The researcher considered this design appropriate for this study since it intended to collect data from practicing business educators regarding the extent of utilization of e- Learning tools as teaching strategies for e-learning in tertiary institutions in South-East Nigeria.

Area of the Study

The study was carried out in colleges of education and universities in South-East, Nigeria, spread across five states namely: Abia, Anambra, Ebonyi, Enugu and Imo. South East is one of the geo-political zones in Nigeria with a total of five states. Majority of the people of the area are predominantly traders and farmers, with considerable passion for western education. Evidently, the increase in the number of private and public schools established in the past years especially tertiary institutions in the geo-political zone indicates the people's passion for education. The choice of this area was informed by this high value placed on education by the people who indicate that the zone is among the educationally advantaged Zones in Nigeria. There are six universities and eight colleges of education in the South East geo-political zone of Nigeria that run business education programme as shown in Appendix A, (P.141).

Population of the Study

The population for the study consisted of 200 business educators from 14 institutions that offer business education programmes in the South East, Nigeria. Information gathered from the Academic Planning Units of each of the institutions showed the population distribution of business educators as attached to this study in Appendix A, (P.141). No sample was taken for the study because the population was manageable for the researcher to handle.

Instrument for Data Collection

The instrument for data collection was a structured questionnaire tagged “Extent of Utilization of e-Learning Tools as Teaching Strategies by Business Educators (EUE-LTTSBBE)”. The questionnaire was constructed based on the literature reviewed and research questions guiding the study. The instrument consisted of two parts: namely 1 and 2. Part 1 dealt with background information of the respondents such as gender, institution type and institutions ownership. Part 2 contained 52 items organized into five clusters 2A, 2B, 2C, 2D and 2E, covering the research questions guiding the study. The instrument has a five-point rating scale of Very great extent (5 points), Great extent (4 points), Moderate extent (3points), Small extent (2 points) and Very small extent (1 point).

Validation of the Instrument

To ascertain the face validity of the instrument that was used for the study, the researcher submitted the research instrument together with the research topic, purpose of the study, research questions and hypotheses and was subjected to face validation to two experts in the Department of Vocational Technical Education and one expert from the Department of Educational Foundations, both at Nnamdi Azikiwe University, Awka, for face validation. These experts were asked to validate the instrument with reference to the appropriateness of the items, suitability of the items, wordings and item construct. Their inputs were used in modifying the items

to the correct standard which was approved by the researcher's supervisor. The final instrument for this study was attached as Appendix C, (P. 142).

Reliability of the Instrument

To ascertain the internal consistency of the instruments, test re-test method was utilized. The researcher administered copies of the instrument to10 business educators from Delta State University, Abarka who were not part of the population of the study. The instrument was re-administered on the subjects and collected after 14 days. The data from the two tests were analyzed using Pearson Product Moment Correlation Co-efficient to determine its degree of reliability. The computation showed that the clusters achieved the following co-efficient, clusters 2A-0.81, 2B-0.75, 2C-0.58, 2D-0.58, and 2E-0.83 respectively. Therefore, the correlation co-efficient of all the clusters put together was analyzed which yielded a score of 0.71 co-efficient indicating that the instrument was reliable for the study. The working of this co-efficient was shown as Appendix D, (P. 146).

Method of Data Collection

Copies of the questionnaire used for the study was administered by the researcher personally to the respondents in the institutions with the aid of five research assistants who are business educators (one from each state) within the area of the study. The questionnaire was accompanied with a letter of introduction from the researcher explaining the purpose of the exercise and appealing to business educators to provide the researcher the

information which would be helpful in the study. The researcher instructed the research assistants to distribute and collect the instrument the same day so as to avoid loss or misplacement of the instrument by some respondents. A period of four weeks was used for the distribution and collection of the questionnaire. Out of a total of 200 copies of the questionnaire distributed to the respondents, 194 copies were filled and returned by the respondents. The questionnaire collected was used for data analysis.

Method of Data Analysis

The data collected from the respondents were analyzed using descriptive statistics (mean and standard deviation) for all the research questions. The mean value was used to answer the five research questions while the standard deviation was used to ascertain the homogeneity or other-wise of the respondents mean ratings. The z-test statistics was used to test the null hypotheses.

Decision Rule

For the research questions, real limit of numbers was used to determine the extent of utilization of e-Learning tools for teaching strategies by business educators in tertiary institutions in south east, Nigeria.

Responses	Rating scale	Real limits number
Very Great Extent (VGE)	5	4.50 - 5.00
Great Extent (GE)	4	3.50 - 4.49

Moderate Extent (ME)	3	2.50 - 3.49
Small Extent (SE)	2	1.50 - 2.49
Very Small Extent (VSE)	1	0.50 - 1.49

With reference to the research questions, the decision was that items with mean ratings of 4.50-5.00 were regarded as “very high extent”. Mean ratings from 3.50-4.49 were considered as “great extent”. Mean ratings that range from 2.50-3.49 were regarded as “moderate extent”. Mean ratings from 1.50-2.49 were regarded as “small extent”. While mean ratings between 0.50-1.49 were regarded as “very small extent”. The null hypothesis was rejected where the calculated z- value was equal to or greater than the critical z- value: otherwise the null hypothesis was retained.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

This chapter presents the data collected and the statistical analysis of the study. The results of the analysis of data are ordered according to research questions raised and hypotheses postulated in chapter one. Summary of major findings are also presented.

Analysis of Data Related to Research Questions

Research Question 1

To what extent do business educators in tertiary institutions in south east Nigeria utilize multimedia as teaching tools for e-Learning?

Data collected in response to the first research question were analyzed and presented in Table 1.

Table 1: Business educators' mean rating on the extent of utilization of multimedia as teaching tools for e-Learning in tertiary institutions in south east Nigeria.

N = 194

S/N	Multimedia Tools	Mean	SD	Remarks
1	Computer assisted learning	2.86	1.29	Moderate Extent
2	Computer assisted research	2.76	1.33	Moderate Extent
3	Online/Offline ordinary computer	2.91	1.21	Moderate Extent
4	Text	2.86	1.42	Moderate Extent
5	Sound	2.75	1.67	Moderate Extent
6	Video camera to aid teaching	2.65	1.35	Moderate Extent
7	Animation	2.47	1.49	Small Extent
8	Graphic software	3.04	1.35	Moderate Extent
9	CD – Rom story books	2.89	1.29	Moderate Extent
10	Video dice software	2.66	1.47	Moderate Extent
11	Hypermedia	2.59	1.42	Moderate Extent
12	Talking books and speech Synthesis	2.60	1.42	Moderate Extent
13	Computer simulation	2.70	1.35	Moderate Extent
14	Quick books software	2.77	1.43	Moderate Extent
15	Interactive Radio	2.92	1.35	Moderate Extent
16	Multimedia projector	2.82	1.31	Moderate Extent
17	Digital projector to aid teaching	2.93	1.44	Moderate Extent
18	Bulletin board system	2.66	1.32	Moderate Extent
19	Virtual Lab	2.98	1.28	Moderate Extent
20	Interactive white board (WWB)	2.77	1.38	Moderate Extent
21	Electronic copy board	2.57	1.39	Moderate Extent
	Mean of Means	**2.83**		**Moderate Extent**

The data shown in Table 1 indicate that Computer Assisted Learning, Computer Assisted Research, Online/Offline Ordinary Computer, Text, Sound, Video, Graphic Software, CD – Rom Story Books, Video Dice,

Hypermedia, Talking Books and Speech Synthesis, Orbiting Satellite, Quick Books, Interactive Radio, Multimedia Projector, Digital Projector, Bulletin Board System, Computer Simulation, Interactive White Board (WWB), and Electronic Copy Board were used to a moderate extent with mean ranging from 2.57-3.04 respectively, While the result showed that only Animation was used to a small extent with mean of 2.47. The mean of means revealed that business educators utilized multimedia as teaching tools for e-learning to a moderate extent with a mean score of 2.83.

Research Question 2

To what extent do business educators in tertiary institutions in south east Nigeria utilize internet as teaching tools for e-learning?

Data related to research question 2 were analyzed and presented in Table 2:

Table 2: Business educators mean rating on the extent of utilization of internet as teaching tools for e-learning in tertiary institutions in south east Nigeria.
N = 194

S/N	Internet Tools	Mean	SD	Remarks
22	Electronic mail (E-mail)	2.93	1.13	Moderate Extent
23	Intranet local area network	2.80	1.42	Moderate Extent
24	Virtual library	2.56	1.42	Moderate Extent
25	Face book	2.90	1.38	Moderate Extent
26	Twitter	2.80	1.46	Moderate Extent
27	Bogs to support teaching	2.66	1.47	Moderate Extent
28	Google search engine	3.16	1.33	Moderate Extent
29	Web 2.0	2.75	1.43	Moderate Extent
30	You Tube	2.81	1.34	Moderate Extent
31	Wiki search engine	2.29	1.41	Small Extent
	Mean of Means	**2.85**		**Moderate Extent**

The data shown in Table 2 shows that the business educators utilized Electronic Mail, Intranet, Virtual Library, Face Book, Twitter, Bogs, Goggle Search, Web 2.0, You Tube, Wiki, to a moderate extent with mean ranging from 2.56-3.16 respectively. While the result showed that only wiki search engine was used to a small extent with mean of 2.29. The mean of means revealed that business educators used internet as teaching tools for e-Learning to a moderate extent with a mean score of 2.85.

Research Question 3

To what extent do business educators in tertiary institutions in south east Nigeria utilize blended learning as teaching tools for e-learning?

Data related to research question 3 were analyzed and presented in Table 3.

Table 3: Business educators' mean rating on the extent of utilization of blended learning as teaching tools for e-Learning in tertiary institutions in south east Nigeria.
N = 194

S/N	Blended Learning Tools	Mean	SD	Remarks
32	Computer (laptop & desktop)	3.01	1.28	Moderate Extent
33	A plasma Screen	2.40	1.37	Small Extent
34	Power point office suit software	3.03	1.32	Moderate Extent
35	Educational software	2.79	1.38	Moderate Extent
36	Word processing	2.85	1.28	Moderate Extent
37	Virtual classroom	2.52	1.43	Moderate Extent
	Mean of Means	**2.85**		**Moderate Extent**

The data shown in Table 3, shows that the business educators utilized Computer, A plasma Screen, Power Point, Educational Software, Word Processing, and Virtual Classroom to a moderate extent with mean ranging from 2.52-3.03 respectively. The mean of means revealed that business educators used blended learning as teaching tools for e-Learning to a moderate extent with a mean score of 2.85.

Research Question 4

To what extent do business educators in tertiary institutions in south east Nigeria use telecommunication as teaching tool for e-learning?

Data related to research question 4 were analyzed and presented in Table 4.

Table 4: Business educators mean rating on the extent of utilization of telecommunication as teaching tools for e-learning in tertiary institutions in south east Nigeria.

N = 194

S/N	Telecommunication Tools	Mean	SD	Remarks
38	Mobile/smart phone	2.77	1.43	Moderate Extent
39	Interactive Television	2.56	1.42	Moderate Extent
40	Podcasting	2.48	1.41	Small Extent
41	Video Conferencing	2.64	1.35	Moderate Extent
42	Computer aided assessment	2.85	1.28	Moderate Extent
43	Optical Fiber to aid teaching	2.70	1.35	Moderate Extent
44	Satellite cable to aid teaching	2.44	1.44	Small Extent
	Mean of Means	**2.16**		**Small Extent**

Table 4, shows that mean responses of the business educators fall within the range of 2.44-2.85 respectively, and it implies that business educators utilized Mobile/Smart Phone, Interactive Television, Video Conferencing, Computer Aided Assessment, Optical Fiber to a moderate extent, while Satellite and Podcasting, were used to a small extent ranging from 2.44-288. The mean of means revealed that business educators used telecommunication as teaching tools for e-Learning to a small extent with a mean score of 2.16.

Research Question 5

To what extent do business educators in tertiary institutions in south east Nigeria utilize training and retraining of business educators as teaching tool for e-learning?

Table related to research question 5, were analyzed and presented in Table 5.

Table 5: Business educators' mean rating on the extent of utilization of training and retraining of business educators as teaching tools for e-Learning in tertiary institutions in south east Nigeria.
N = 194

S/N	Training and Retraining of Business Educators	Mean	SD	Remarks
45	Pre-service training in local Institutions	2.93	1.13	Moderate Extent
46	Pre-service training in foreign Institutions	2.55	1.45	Moderate Extent
47	In-service training via sandwich	3.57	1.17	Great Extent
48	In-service training by N.T.I.	2.34	1.29	Small Extent
49	Mentorship by experts in the field	2.70	1.35	Moderate Extent
50	Sponsoring teachers to conference	2.93	1.39	Moderate Extent
51	Sponsoring teachers to seminars	2.73	1.42	Moderate Extent
52	Organizing workshops for business educators	2.77	1.38	Moderate Extent
	Mean of Means	**2.85**		**Moderate Extent**

The data shown in Table 5 indicate that In-service Training via Sandwich was utilized to a great extent with mean of 3.57. However, Pre-service Training in local Institutions, Pre-service Training in Foreign Institutions, Mentorship by Experts in the Field, Sponsoring Teachers to Conference, Sponsoring Teachers to Seminars, and Organizing Workshops for Business Educators were either adopted or used to a moderate extent with mean ranging from 2.55-2.93 respectively. While In-service Training by N.T.I. was used to a small extent with mean of 2.34. The mean of means

revealed that business educators used training and retraining of business educators as teaching tools for e-Learning to a moderate extent with a mean score of 2.85.

Testing the Hypotheses

The four hypotheses formulated were tested in this section. The z-test statistic was used for analyzing data relating to the four hypotheses. All the four hypotheses were tested at 0.05 level of significance. The results of the computation are shown in the tables below:

Null Hypothesis 1

Business educators' do not differ significantly in their mean ratings on the extent of utilization of multimedia as teaching tools for e-learning based on type of institution (colleges of education and universities) in south east, Nigeria.

This null hypothesis was tested using z-test at 0.05 level of significance.

The results are indicated in Table 6.

Table 6: z-test result analysis of colleges of education and universities business educators on the extent of utilization of multimedia as teaching tools for e-learning. N=194

Type of Institution	N	Mean	SD	α	Df	z-cal	z-crit	Remark
Universities	69	2.88	1.37					
				0.05	192	0.73	1.96	Not rejected
Colleges of Education	125	2.75	1.07					

As shown in Table 6, business educators in universities in south east Nigeria recorded a mean score of 2.88 on their utilization of multimedia as teaching tools for e-learning. On the other hand, the business educators in the colleges of education had a mean score of 2.75 on their ratings of utilization of multimedia as teaching tools for e-learning. The z-calculated value of 0.73 is less than the z-tabulated value of 1.96 at 192 degree of freedom at 0.05 level of significance and this suggests that business educators do no differ significantly in their mean ratings on the extent to which multimedia are utilized as teaching tools for e-learning as a result of type of institution (university or college of education) in south east Nigeria. The null hypothesis was therefore, not rejected while the alternative hypothesis was rejected.

Null Hypothesis 2

There is no significant difference in business educators' mean ratings on the utilization of internet as teaching tools for e-learning as a result of type of institution (college of education and university) in south east, Nigeria.

This null hypothesis was tested using z-test at 0.05 level of significance.

The results are indicated in Table 7.

Table 7: z-test result analysis of colleges of education and universities business educators on the extent of utilization of internet as teaching tools for e-learning. N = 194

Type of Institution	N	Mean	SD	α	Df	z-cal	z-crit	Remark
Colleges of Education	69	2.75	1.34					
				0.05	192	-1.35	1.96	Not rejected
Universities	125	3.03	1.40					

Data in Table 7, indicate that business educators in universities in south east Nigeria had a mean score of 2.75 on their utilization of internet as teaching tools while those in the colleges of education had a mean score of 3.03. The z-calculated of -1.35 is less than the z-critical value of 1.96 at 192 degree of freedom at 0.05 level of significance. Since the z-calculated value was less than the z-critical value, the null hypothesis was not rejected. This implies, therefore, that there is no significant difference in business

educators' mean ratings on the utilization of internet as teaching tools for e-learning as a result of type of institution (colleges of education and universities) in south east Nigeria. The null hypothesis was therefore, not rejected while the alternative hypothesis was rejected.

Null Hypothesis 3

Business educators' from colleges of education and their counterparts from universities do not differ significantly on the extent of utilization of blended learning as teaching tools for e-learning based on gender (male and female) in south east, Nigeria.

This null hypothesis was tested using z-test at 0.05 level of significance.

The results are indicated in Table 8.

Table 8: z-test result of the difference between the mean ratings of male and female business educators on their extent of utilization of blended learning as teaching tools for e learning.

N=194

Gender	N	Mean	SD	α	Df	z-cal	z-crit	Remark
Male	66	3.09	1.31					
				0.05	192	1.83	1.96	Not rejected
Female	128	2.73	1.27					

As shown in Table 8, the z-calculated value 1.83 is less than the critical z-value 1.96 at 192 degree of freedom at 0.05 level of significance. The results indicate that male business educators in tertiary institutions with a mean score of 3.09, and female business educators with a mean score of

2.73 do not differ on their utilization of blended learning as teaching tools for e-learning. The null hypothesis was therefore not rejected that business educators from colleges of education and their counterparts' form universities do not differ significantly on their utilization of blended learning as teaching tools for e-learning based on gender (male and female) in south east Nigeria. The null hypothesis was therefore, not rejected while the alternative hypothesis was rejected.

Null Hypothesis 4

There is no significant difference in business educator' mean ratings on the extent of utilization of telecommunication as teaching tools for e-learning as a result of institution ownership (public and private owned) in south east, Nigeria.

This null hypothesis was tested using z-test at 0.05 level of significance.

The results are indicated in Table 9.

Table 9: z-test result analysis of public and private business educators on the extent of utilization of telecommunication as teaching tools for e-learning.

N = 194

Ownership of Institution	**N**	**Mean**	**SD**	**α**	**Df**	**z-cal**	**z-crit**	**Remark**
Private	15	2.47	1.26	0.05	192	1.84	1.96	Not rejected
Public	179	2.13	2.13					

Business educators in public owned tertiary institutions in south east Nigeria, as shown in Table 9, recorded a mean score of 2.47 on their utilization of telecommunication as teaching tools for e-learning while those in other private tertiary institutions recorded a mean score of 2.13. The z-calculated is 1.84 is less than the z-critical value of 1.96 at 192 degree of freedom at 0.05 level of significance. The null hypothesis was therefore not rejected meaning that there is no significant difference in business educators' mean ratings on their utilization of telecommunication as teaching tools for e-learning as a result of institution ownership (public and private owned) in south east Nigeria. Therefore, means of the null hypothesis was retained (see appendix E).

Summary of Major Findings

The major findings obtained from results of the data analysis showed that:

1. Business educators indicated that they used multimedia as teaching tools for e-learning as classroom instruction to a moderate extent.

Business educators indicated that they had used internet as teaching tools for e-learning to a moderate extent.

3. Business educators in tertiary institutions indicated that they used blended learning as teaching tools and processes for educational purposes.

4. Business educators in tertiary institutions in south east Nigeria used two item of telecommunication such as podcasting and satellite as teaching tools

to small extent. While, they used mobile phones, interactive radio, interactive television, intranet, video conferencing, satellite cable for classroom instructions to a moderate extent.

5. Business educators in tertiary institutions consider training and retraining of business educators as teaching tools for e-learning to a moderate extent.

6. Business educators in tertiary institutions did not differ significantly in their use of multimedia as teaching tools for e-learning as a result of the type of institution they worked.

7. Business educators in tertiary institutions did not differ significantly in their mean ratings regarding the utilization of internet as teaching tools for e-learning as a result of the type of institution they worked.

8. Business educators in tertiary institutions south east Nigeria did not differ significantly in their utilization of blended learning as teaching tools as a result of gender.

9. Business educators in public-owned tertiary institutions in south east Nigeria do not differ significantly from their counterparts in private-owned tertiary institutions on how they utilize telecommunication as teaching tools for e-Learning.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This chapter discusses the findings of the study, draws conclusion, implications of the study, recommendations, and limitations of the study and makes suggestions for further studies.

Discussion of Findings

Research Question 1

Extent of Utilization of Multimedia as teaching tools for e-Learning

The discussion was presented according to the research questions posed and hypotheses formulated in chapter one. Findings of the study in the first research question revealed that business educators used multimedia as teaching tools for e-Learning in business education such as animation to a small extent in this study with a mean of 2.47. This agreed with the views of Azubuike and Offordile (2012) that the extent of multimedia as e-Learning in business education were not extensively used by business educators, while traditional approach are more often used by business educators because tertiary institutions lacked some of multimedia tools, and problems facing the use of multimedia in teaching and learning includes poor power supply, financial problems, low computer literacy level, low quality and expensive nature of the use of multimedia in teaching and learning. The author also found that strategies could be adopted to improve the use of multimedia in teaching and learning such as training of business educators in e-Learning,

allocation of more fund, schools sourcing fund and telephone lines to be digitalized.

The data collected showed that some of this multimedia for teaching tools are used to a moderate extent as instructional delivery tools. These may be as a result of challenges accompanying its usage. As pointed out by Onasanya (2009), the challenges of multimedia range from funding to lecturers resistance to change, and poor electricity power supply and its stability. It is therefore, clear that the utilization of multimedia as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria was still in its developmental stage as agreed by (OECD, 2005). In agreement with this, Chinlen (2003) pointed out the issue of inadequate skilled manpower and high cost of equipment for instructional delivery. The OECD (2005) maintained that it was imperative for business educators to learn how to use multimedia as teaching tools for instructional delivery in business education for their daily teaching and learning to provide the students with opportunities to work as individuals, in pairs, in small and large groups to accomplish their learning goals.

It was a known fact that the world is in a technological advancement era where everything has been computerized and teaching and learning has moved from teacher centered learning to learner centered learning. Thus, students should be taught with new instructional mode so as to withstand the challenges of the present dynamic world. Failure to use multimedia to a great

extent or very great extent will result in producing half baked business education students and graduates who may not meet up the technological demand of business enterprise, new instructional mode, and the society at large (UNESCO, 2002).

Results in Table 6, revealed that the business educators did not differ significantly in their mean ratings on the extent of utilization of multimedia as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria as a result of type of institutions (universities and colleges of education). This means that the institution type does not affect the utilization of multimedia for teaching tools for e-Learning. Business educators in the universities and those in the colleges of education equally used multimedia as teaching tools for e-Learning. No one was disadvantaged in knowing about the benefits of multimedia as teaching tools for e-Learning as a result of type of institution.

Research Question 2

Extent of Utilization of internet as teaching tools for e-Learning

The findings of the study in the second research question also, revealed that extent of utilization of internet as teaching tools for e-Learning by business educators in tertiary institutions in south east Nigeria were at a moderate level with the means ranging from 2.56-3.16 respectively, while only item 31(wiki search engine) was used to a small extent with a mean of 2.29. The data collected showed that some of these internet tools were used

to a moderate extent due to lack of ICT technical support and may be attributed to the limited number of business educators who are professionals in the usage of internet.

The role of internet as an instructional delivery tools in business education cannot be over emphasized (Kling, in Bupo, 2012). Yusuf and Onansanya (2004) concurred to this by earlier pointing out those internet tools that supports teaching and learning, especially for group assignments, communities, research, books, journal, list of references works, and online materials. Nadiu (2006) remarked that internet tools have the potential to increase students' confidence in accessing learning experiences anytime and anywhere. Nwaosa and Okolocha (2013) revealed that business educators use internet for teaching and learning in business education to a small extent due to poor internet connectivity, shortage of qualified staff with internet application skills, lack of interest in using them in their teaching and due to their negligence, deliberate attempt or as a result of their readiness toward change.

Results in Table 7, revealed that there was no significant difference in the business educators' mean ratings on the extent of utilization of internet as teaching tools for e-Learning as a result of type of institutions (colleges of education and universities). This means that the institution type does not affect the extent of utilization of internet as teaching tools for e-Learning by business educators. Business educators in colleges of education and

universities viewed internet teaching tools for e-Learning in business education especially for posting of research works, books, journals, list of references among others. Yusuf and Onasanya (2004) concurred to this by pointing out that internet supports teaching especially for group assignments, posting of research works, books, journals, list of references works, and online materials. This is in contrast with the findings of Leem and Lim (2007) that discovered differences in support and opportunity to use internet for teaching e-Learning among Korean tertiary institutions.

Research Question 3

Extent of Utilization of Blended learning as teaching tools for e-Learning

Findings of the study in the third research question also, revealed that business educators in tertiary institutions in south east Nigeria utilized blended learning as teaching tools for e-Learning at a moderate extent with means ranging from 2.52-3.03 respectively while only item 33 (plasma Screen) was used to a small extent. The findings partly contradict the findings of Chen (2012) who argued that there is gross under utilization of blended learning in Nigerian tertiary institutions. The results show that business educators used the plasma screen to aid teaching and learning at a small extent with a mean of 2.40.

Moreso, the findings also showed that business educators used power point and computer educational processes especially in assessing students'

project work presentation. Students also processed their research empirical study and findings of authors using computer and this supports findings of Manir (2009) that there was tremendous growth of computer equipment and internet usage by lecturers and students of Nigerian tertiary institutions. This shows that to some extent, blended learning was utilized by business educators in tertiary institutions which contradicts the views of Okiki (2011).

However, business educators moderately utilized blended learning as teaching tools, such as virtual classroom, word processing, educational software to a moderate extent for instructional delivery. These blended learning tools appear not to be commonly used in Nigerian tertiary institutions because of the attendant challenges accompanying its usage. As pointed out by Kling in Bupo (2012), the problems of blended learning range from environment where learners lack or have limited access to ICTs to poor electricity power supply. It was therefore clear that the extent of utilization of blended learning for teaching tools for e-Learning in business educators in tertiary institutions in south east Nigeria was still in its infancy stage as argued by Chen (2012).

Findings of the study presented in Table 8, revealed that business educators from colleges of education and their counterparts' from universities did not differ significantly on extent of utilization blended learning as teaching tools for e-Learning based on gender (male and female). This means that male business educators in tertiary institutions in

south east Nigeria do not differ from the female business educators on the extent of utilization of blended learning as teaching tools for e-Learning. This contradicts the views of Murphy and Greenwood (1988) who reported that age and gender effect could be factors in determining the extent of low business educators ICT uptake. The result of this study was also in contrast with the views of Agboola (2006) who suggested that male business educators experience less anxiety about e-Learning and make more frequent use of it. Wagner, Hassan, and Head, (2008) posited that female business educators are assumed to show lower confidence or knowledge ability than male about using blended learning approaches for e-Learning. However, the results of this study showed that male and female business educators do not differ on the extent of utilization of blended learning as teaching tools for e-Learning in tertiary institutions in south east Nigeria.

Research Question 4

Extent of Utilization of Telecommunication as teaching tools for e-Learning

Findings of the study regarding the fourth research question indicated that business educators utilized telecommunication as teaching tools such as mobile/smart phone, interactive television, video conferencing, computer aided assessment and optical at moderate extent while others were used at a small extent with mean scores of 2.44-2.48. The findings of the study were supported by the findings of Santrock (2007), that there was little or no use

of telecommunication as teaching and learning, due to lack of electric in substantial part of the country. Telecommunication tools can be indispensible ingredient that is most required by business educators, business enterprises and non-business organizations as a means of communication. Consequently, organizations now require that very employee/staff from the manager down must possess working knowledge of the ICTs facilities. This serves as prerequisite for getting employment presently (Jenkins & Hanson, 2003). In the light of this, Ziewer and Seidi (2011) opined that schools should train their graduates towards responding to business and environmental requirements of the 21st century by introducing ICT practical skills acquisition progrommes and courses needed to face the challenges of 21st century in organizations since technological skills have become pre-requisite for getting employment.

Result in Table 9, revealed that there was no significant difference in business educators' mean ratings on the extent of utilization of telecommunication as teaching tools for e-Learning as a result of institutions ownership (public and private). This means that business educators in public owned tertiary institutions in south east Nigeria do not often use telecommunication more than those in the private tertiary institutions in Nigeria. As a result, institutions ownership does not significantly determine how telecommunication is utilized as teaching tools for e-learning. This findings was in-line with the propositions of Okiki (2011) that there was

increased government policy on how often e-Learning are used which cuts across all tertiary institutions in Nigeria irrespective of the ownership structure of those institutions.

Research Question 5

Extent of Utilization of training and retraining of business educators as teaching tools for e-Learning

The analysis of data related to the fifth research question, revealed that business educators in tertiary institutions in south east Nigeria utilized training and retraining of their members to a moderate extent, with only one item (in-service training via sandwich) being utilized to a great extent while in-service training by N.T.I was used to a small extent with a mean score of 2.34. These results agreed with the views of Ogbiji (2006) who pointed out that there was shortage of skilled manpower among business educators. The results show that the business educators were trained and retrained through in-service via sandwich to a great extent with a mean score of 3.57.

Conclusion

Based on the findings of the study, it was concluded that business educators in tertiary institutions in south east Nigeria utilized multimedia, internet, blended learning, telecommunication, training and retraining of business educators as teaching tools for e-learning at moderate extent as a result of insufficient training and retraining given to them. The outcome of the study also revealed that gender, type of institutions and ownership of

institutions did not affect the extent of utilization of e-learning tools as teaching strategies by business educators as an instructional delivery in tertiary institutions in south east Nigeria.

Implications of the study

Findings of this study have serious implications on teaching business education courses. It was assumed that all the business educators in south east Nigeria are meant to inculcate in the students positive learning through the use of appropriate teaching tools for e-Learning in business education. That the majority of them utilized e-learning tools for teaching strategies mentioned above to moderate extent and small extent which means that they are still strongly attached to the traditional method of teaching. This, as stated earlier will retrogressively result in the production of business education graduates who will be inadequately to able work with the new instructional mode where skill acquisition is demanded. Thus, it will cause poor performance of business education graduates in the world of work, difficulty in getting employment or even survive as future business educators after graduation.

Another implication of this study is that every business educator should attend regular in-service education so as to keep abreast of current and future innovations in teaching. This implies that all categories of business educators (both serving and newly recruited) should attend regular

refresher courses, so as to update and equip themselves with current technology advancement especially new instructional delivery strategies.

Recommendations

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

1. Business educators should realize that a lot of changes are going on in education and the business world and therefore should not wait for school authorities to monitor or direct them on the right thing to do. They should develop themselves and constantly use e-Learning tools as teaching strategies in teaching tasks. This will help them to develop professionally, keep abreast of modern technology, improve academic performance of business education graduates and bridge the gaps that exist between what is taught in school and what is obtainable in business world.
2. In–service training programmes such as seminar, in–service course, conferences and workshops on the use and operation of new learning technologies should be made compulsory for all practicing business educators and lecturers from tertiary institutions in south east Nigeria to enable them develop up-to-date e-Learning competences, knowledge, and skills.
3. Business educators in tertiary institutions in south east Nigeria should basically be involved in the use of these e-learning tools as teaching

strategies from great extent to a very great extent in the education process.

Limitations of the Study:

Accessibility of some of the colleges of education in remote areas of the State affected the completion of this study on record time, because the research assistants could not get to the locations on time due to bad roads. Another limitation encountered in the study was that business educators in some of the tertiary institutions were hesitant to fill the questionnaire. Many of them felt it was a waste of their time and this led to the researcher pleading with them that the questionnaire was for research purpose only. Finally, the study was limited to accuracy of information got from the respondents, as indicated by their objectivity in completing the questionnaire items.

Suggestions for Further Study

The results of the present study suggest that further studies could be undertaken in the following areas:

1. Assessment of business educators' use of e-learning facilities in tertiary institutions in Anambra State.
2. Assessment of the adequacy of e-learning facilities in tertiary institutions in south east Nigeria.
3. Perceived effective e-learning tools as strategies by secondary school business studies teachers in Anambra State.

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APPENDIX A

POPULATION DISTRIBUTION OF BUSINESS EDUCATORS IN UNIVERSITIES AND COLLEGES OF EDUCATION THAT OFFER BUSINESS EDUCATION IN SOUTH EAST NIGERIA.

S/N	NAME OF UNVIERSITIES & COLLEGES OF C EDUCATION	NO OF BUSINESS EDUCATORS
1	Abia State University-Uturu	8
2	Abia State College of Education Technical- Arochukwu	9
3	Nnamdi Azikiwe University-Awka	11
4	Madonna University-Okija	7
5	Nwafor Orizu College of Education-Nsugbe	25
6	Federal College of Education(Tech)-Umunze	42
7	Ebony State University-Abakaliki	9
8	Ebonyi State College of Education-Ikwo	10
9	University of Nigeria Nsukka	19
10	Enugu State University of Science and Technology- Enugu	9
11	Enugu State College of Education(Tech)-Enugu	10
12	Federal College of Education Eha-Amufu	13
13	Our Saviour Institutes of Science and Technology-Enugu	8
14	Alvan Ikoku College of Education Owerri	20
	TOTAL	**200**

APPENDIX B

LETTER OF TRANSMITTAL

Department of Vocational Education,
Faculty of education,
Nnamdi Azikiwe University,
Awka.
26th October, 2015

Dear Business Educator,

REQUEST TO RESPOND TO A QUESTIONNAIRE

I am a post graduate student of Nnamdi Azikiwe Univeristy, Awka. I am carrying out a research study on extent of utilization of e-Learning tools as teaching strategies by business educators in tertiary institutions in south east Nigeria. As a business educator, you have been identified as an important resource person whose input will contribute to a successfully conduct of this study.

The attached questionnaire is designed for data collection for the study. I humbly request that you assist me by responding to all sections of the questionnaire on the assurance that your responses will be held in strict confidence and used solely for the stated academic purpose.

Thank you immensely for your co-operation.

Yours sincerely,
SIGNED
Udegbunam, Emmanuel Obidi
Researcher

APPENDIX C

QUESTIONNAIRE ON EXTENT OF UTILIZATION OF e-LEARNING TOOLS FOR TEACHING STRATEGIES BY BUSINESS EDUCATORS.

PART 1: Background Information.

Please tick (√**)** in the appropriate boxes for items 1 to 3 below as they apply to you.

(1) Gender: Male □ Female □

(2) Institution Type: University □ College of Education □

(3) Institution Ownership: Public owned □ private owned □

PART 2: Instruction.

Please tick (√) in the appropriate options for all the items in section A to E below to indicate your opinion on extent of utilization of e-learning tools for teaching strategies in business education.

Use the following response categories to indicate your rating:

VGE = Very Great Extent

GE = Great Extent

ME = Moderate Extent

SE = Small Extent

VSE = Very Small Extent

Section A: Extent of utilization of Multimedia as Teaching Tools for e-Learning

S/N	Multimedia Tools	VGE	GE	ME	SE	VSE
1	Computer Assisted Learning					
2	Computer Assisted Research					
3	On-line/off line Ordinary Computer					
4	Text					
5	Sound					
6	Video camera to aid teaching					
7	Animation					
8	Graphic software					
9	CD-ROM storybooks					
10	Video dice software					
11	Hypermedia					
12	Talking books and speech synthesis					
13	Computer Simulation					
14	Quick books software					
15	Interactive Radio					
16	Multimedia projector					
17	Digital Projector to aid teaching					
18	Bulletin Board System					
19	Virtual Lab					
20	Interactive White Board (IWB					
21	Electronic Copy Board					

SECTION B: Extent of utilization of Internet as Teaching Tools for e-Learning

S/N	Internet Tools	VGE	GE	ME	SE	VSE
22	Electronic Mail (E-mail)					
23	Intranet Local Area Network					
24	Virtual Library					
25	Face book chat room					
26	Twitter					
27	Bogs to support teaching					
28	Goggle search engine					
29	Web 2.0					
30	You Tube chat room					
31	Wiki search engine					

SECTION C: Use of Blended Learning as Teaching Tool for e-Learning

S/N	Blended Learning Tools	VGE	GE	ME	SE	VSE
32	Computer(laptop & desktop) to a teaching					
33	A plasma Screen					
34	Power Point office suit software					
35	Educational Software					
36	Word Processing					
37	Virtual Classroom					

SECTION D: Extent of utilization of Telecommunication as Teaching Tools for e-Learning

S/N	Telecommunication Tools	VGE	GE	ME	SE	VSE
38	Mobile smart Phones					
39	Interactive Television					
40	Podcasting					
41	Video Conferencing					
42	Computer Aided Assessment					
43	Optical Fiber to support teaching					
44	Satellite Cable to aid teaching					

SECTION E: Extent of utilization of Training and Retraining of Business Educator as Teaching Tools for e-Learning

S/N	Training And Retraining of Businesses Educators	VGE	GE	ME	SE	VSE
45	Pre-service training in local Institutions					
46	Pre-service training in foreign institutions					
47	In-service training via sandwich					
48	In-service training by N.T.I					
49	Mentorship by experts in the field					
50	Sponsoring teachers to conferences					
51	Sponsoring teachers to seminars					
52	Organizing Workshops for teachers					

APPENDIX D

COMPUTATION OF PEARSON PRODUCT MOMENT CORRELATION CO-EFFICIENT FOR THE TEST-RETEST RELIABILITY OF THE INSTRUMENT USED FOR THE STUDY

Working for cluster 2A

Items	X	Y	XY	X^2	Y^2
1	3.7	3.3	12.21	13.69	10.89
2	3.7	3.9	14.43	13.69	15.21
3	2.5	2.4	6.00	6.25	5.76
4	3.7	4.1	15.17	13.69	16.81
5	3.9	2.8	10.92	15.21	7.84
6	2.5	2.7	6.75	6.25	7.29
7	2.9	3.9	11.31	8.41	15.21
8	2.1	2.2	4.62	4.41	4.84
9	4.0	2.3	9.20	16.00	5.29
10	2.4	2.5	6.00	5.76	6.25
12	2.7	3.2	8.64	7.29	10.24
12	3.9	2.3	8.97	15.21	5.29
13	3.2	2.9	9.28	10.24	8.41
14	2.7	3.2	8.64	7.29	10.24
15	2.2	2.8	6.16	4.84	7.84
16	2.5	2.4	6.00	6.25	5.76
17	3.0	4.2	12.6	9.00	17.64

18	4.1	2.5	10.25	16.81	6.25
19	4.4	3.8	16.72	19.36	14.44
20	4.1	2.5	10.25	16.81	6.25
21	4.5	4.1	18.45	20.25	16.81
∑	**64.8**	**63.0**	**212.57**	**236.71**	**204.56**

$$r = \frac{N\sum XY - \sum X \sum Y}{\sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

Where:

r = Pearson Product Moment Representation

X = Test

Y = Re-Test

N = Total mean items

$$r = \frac{21X\ 212.57 - 64.8X\ 64.0}{\sqrt{[21\ X\ 236.71 - (64.8)^2][21\ X\ 204.56 - (64.0)^2]}}$$

$$r = \frac{4463.97 - 4147.2}{\sqrt{[4970.91 - 4199.04][4295.76 - 4096]}}$$

$$r = \frac{316.77}{\sqrt{771.87\ x\ 199.76}}$$

$$r = \frac{316.77}{}$$

$$\sqrt{154188.7512}$$

$$r = \frac{316.77}{392.67}$$

r = **0.81**

Working for cluster 2B

Items	X	Y	XY	X^2	Y^2
1	4.0	2.9	11.60	16.00	8.41
2	2.9	2.6	7.54	8.41	6.76
3	2.2	4.2	9.60	4.84	17.64
4	3.7	3.6	13.32	13.69	12.96
5	3.9	2.3	8.41	15.21	5.29
6	3.7	3.7	13.69	13.69	13.69
7	2.7	2.5	6.75	7.29	6.25
8	3.9	2.9	11.13	15.21	8.41
9	3.7	3.6	13.32	13.69	12.96
10	2.4	2.0	4.80	5.76	4.00
∑	**30.75**	**27.8**	**88.9**	**99.095**	**81.86**

$$r = \frac{10 \text{ X } 88.9 - 30.75 \text{ X } 27.8}{\sqrt{[10 \text{ X } 99.095 - (30.75)^2][10 \text{ X } 81.86 - (27.8)^2]}}$$

$$r = \frac{889 - 854.85}{\sqrt{[990.95 - 945.56][818.6 - 772.84]}}$$

$$r = \frac{34.15}{5.39 \text{ X } 45.76}$$

$$r = \frac{34.15}{077.0464}$$

$$r = \frac{34.15}{45.57}$$

$$r = \mathbf{0.75}$$

Working for cluster 2C

Items	X	Y	XY	X^2	Y^2
1	3.4	2.0	6.80	11.56	4.0
2	2.9	2.3	6.67	8.41	5.29
3	3.1	2.9	8.99	9.61	8.41
4	3.0	1.7	5.10	9.0	2.89
5	2.6	1.9	4.94	6.76	3.61
6	3.3	3.2	10.56	10.89	10.24
∑	**17.85**	**17.8**	**55.24**	**57.50**	**56.33**

$$r = \frac{6 \text{ X } 55.24 — 17.85 \text{ X } 17.8}{\sqrt{[6 \text{ X } 57.50 — (17.85)^2][6 \text{ X } 56.33 — (17.8)^2]}}$$

$$r = \frac{331.44 — 317.73}{\sqrt{[345 — 318.6225][337.98 — 316.84]}}$$

$$r = \frac{13.71}{\sqrt{26.3775 \text{ X } 21.14}}$$

$$\mathbf{r} = \frac{13.71}{\sqrt{557.62035}}$$

$$r = \frac{13.71}{23.61}$$

r = 0.58

Working for cluster 2D

Items	X	Y	XY	X^2	Y^2
1	3.2	3.6	11.52	10.24	12.96
2	2.2	2.9	6.38	4.84	8.41
3	2.9	1.8	5.22	8.41	3.24
4	2.8	4.1	11.48	7.84	16.81
5	2.3	3.1	7.13	5.29	9.61
6	2.9	1.9	5.51	8.41	3.61
7	1.6	2.0	3.20	2.56	4.00
∑	**19.33**	**18.5**	**52.76**	**56.85**	**51.33**

$$r = \frac{7 \text{ X } 52.76 - 19.33 \text{ X } 18.5}{\sqrt{[7 \text{ X } 56.85 - (19.33)^2]\,[7 \text{ X } 51.33 - (18.5)^2]}}$$

$$r = \frac{369.32 - 357.61}{}$$

$$\sqrt{[397.95 - 373.65]\,[359.31 - 342.25]}$$

$$r = \frac{11.71}{\sqrt{24.31 \times 17.06}}$$

$$r = \frac{11.71}{\sqrt{414.56}}$$

$$r = \frac{11.71}{20.36}$$

$$r = \mathbf{0.58}$$

Working for cluster 2E

Items	X	Y	XY	X^2	Y^2
1	4.0	2.9	11.60	16.00	8.41
2	2.9	2.6	7.54	8.41	6.76
3	2.2	4.2	9.60	4.84	17.64
4	3.7	3.6	13.32	13.69	12.96
5	3.9	2.3	8.41	15.21	5.29
6	3.7	3.7	13.69	13.69	13.69
7	2.7	2.5	6.75	7.29	6.25
8	3.9	2.9	11.13	15.21	8.41
∑	**24.65**	**22.2**	**70.78**	**79.65**	**64.9**

$$r = \frac{8 \text{ X } 70.78 - 24.65 \text{ X } 22.2}{\sqrt{[8 \text{ X } 79.65 - (24.65)^2][8 \text{ X } 64.9 - (22.2)^2]}}$$

$$r = \frac{566.24 - 547.23}{\sqrt{[637.2 - 607.62][519.2 - 492.84]}}$$

$$r = \frac{19.01}{\sqrt{29.58 \text{ X } 26.36}}$$

$$r = \frac{19.01}{\sqrt{779.7288}}$$

$$r = \frac{19.01}{27.9}$$

r = 0.83

Summation of the Pearson Product Moment Correlation Co-efficient

$$\mathbf{r} = \frac{0.81 + 0.75 + 0.58 + 0.58 + 0.83}{5}$$

$$\mathbf{r} = \frac{3.55}{5}$$

r = 0.71

APPENDIX E

Analyses of Demographic Information of the Respondents.

S/N	Institutions Type		Gender		Ownership of Institutions	
1	Colleges of Education	69	Male	66	Public	179
2	Universities	125	Female	128	Private	66

APPENDIX F

DETAILED ANALYSIS OF RESPONDENTS RESPONSES

Item	Business educators' mean ratings on the extent of utilization of multimedia as teaching tools for e-Learning	VGE	GE	ME	SE	VSE	$\overline{X}$
1	Computer assisted learning	26	35	55	42	36	2.86
2	Computer assisted research	28	31	42	53	40	2.76
3	Online/Offline ordinary computer	31	33	69	26	25	2.94
4	Text	33	41	31	44	45	2.86
5	Video camera to aid teaching and learning	27	27	37	57	46	2.65
6	Animation software	30	23	28	40	73	2.47
7	Graphic software	39	34	46	45	30	3.04
8	CD-Rom story books	25	43	47	44	35	2.89
9	Video dice software	30	34	35	31	64	2.66
10	Hypermedia software	27	32	29	46	60	2.59
11	Talking books & speech synthesis	22	33	35	44	70	2.60
12	Sound software	28	43	26	47	50	2.75
13	Computer simulation to aid teaching	27	33	31	60	43	2.70
14	Quick books software	33	31	38	42	50	2.77
15	Interactive radio	25	55	33	41	40	2.92
16	Multimedia projector	26	33	54	41	40	2.82
17	Digital projector	35	41	42	27	49	2.93
18	Bulletin board system	20	38	43	43	50	2.66
19	Virtual lab	29	41	48	48	28	2.98
20	Interactive white board (IWB)	28	29	48	48	41	2.77
21	Electronic copy board	26	27	36	47	58	2.57

Item	Business educators' mean ratings on the extent of utilization of internet as teaching tools for e-Learning	VGE	GE	ME	SE	VSE	$\bar{X}$
22	Electronic mail (E-mail)	19	41	62	52	20	2.93
23	Internet and local area network	34	33	32	51	44	2.80
24	Virtual library	22	27	37	40	63	2.56
25	Face book chat room	36	29	48	41	40	2.90
26	Twitter chat room	35	34	35	38	52	2.80
27	Bogs to support teaching & learning	30	34	35	31	64	2.66
28	Google search engine	36	50	49	27	32	3.16
29	Web 2.0 software	31	34	36	41	52	2.75
30	You tube chat room	25	39	50	34	46	2.81
31	Wiki search engine	23	20	31	37	83	2.29

Item	Business educators' mean ratings on the extent of utilization of blended learning as teaching tools for e-Learning	VGE	GE	ME	SE	VSE	$\bar{X}$
32	Computer (laptop/desktop) to aid teaching	31	33	70	26	34	3.01
33	A plasma screen	22	23	35	44	70	2.40
34	Power point office suit software	29	47	51	33	35	3.03
35	Educational software	29	36	36	48	45	2.79
36	Word processing software	23	42	50	43	37	2.85
37	Virtual classroom	30	20	34	46	64	2.52

Item	Business educators' mean ratings on the extent of utilization of telecommunication as teaching tools for e-Learning	VGE	GE	ME	SE	VSE	$\bar{X}$
38	Mobile/Smart phones	33	31	38	42	50	2.77
39	Interactive television	27	27	37	40	63	2.56
40	Podcasting	27	23	32	46	66	2.48
41	Video conferencing	27	27	37	57	46	2.64
42	Computer aided assessment	23	41	50	43	37	2.85
43	Optical fiber	27	33	31	60	43	2.70
44	Satellite cable	26	20	45	25	78	2.44

Item	Business educators' mean ratings on the extent on the utilization of training and retraining of business educators as teaching tools for e-Learning	VGE	GE	ME	SE	VSE	$\bar{X}$
45	Pre-service training in local institutions	19	41	62	52	20	2.93
46	Pre-service training in foreign institutions	27	30	35	32	70	2.55
47	In-service training via sandwich	46	70	39	27	12	3.57
48	In-service training by N.T.I	27	37	27	67	36	2.34
49	Mentorship by experts in the field	27	33	31	60	43	2.70
50	Sponsoring teachers to conference	21	23	28	42	80	2.29
51	Sponsoring teachers to seminars	30	34	37	40	53	2.73
52	Organizing workshops for teachers	29	36	36	48	45	2.77

APPENDIX G

SUMMARY OF DATA USED IN THE COMPUTATION OF RESEARCH QUESTIONS AND HYPOTHESES

States	No of business educators	No of Respondents	Multimedia for Teaching Tools for e-Learning		Internet for Teaching tools for e-learning		Blended Learning for Teaching Tools for e-learning		Telecommunication for Teaching Tools for e-learning	
			Colleges of education	Universities	Colleges of education	Universities	Male	Female	Public	Private
Abia	17	17	9	8	9	8	7	10	17	-
Anambra	85	82	65	17	65	17	30	52	75	7
Ebonyi	19	19	10	9	10	9	8	11	19	-
Enugu	59	57	22	35	22	35	10	47	49	8
Imo	20	19	19	-	19	-	11	8	19	-
	200	194	125	69	125	69	66	128	179	15
			VGE =20 GE = 24 ME =28 SE =27 VSE =26	VGE =8 GE 11 ME =20 SE =16 VSE=14	VGE=17 GE=20 ME=33 SE=25 VSE=30	VGE=13 GE=14 ME=20 SE=6 VSE=16	VGE=12 GE=14 ME=18 SE=12 VSE=10	VGE=15 GE=19 ME=37 SE=28 VSE=29	VGE=25 GE=27 ME=37 SE=48 VSE=42	VGE=2 GE=1 ME=2 SE=7 VSE=3

APPENDIX H

RESULT OF Z-TEST ANALYSIS OF THE HYPOTHESES

Null Hypothesis 1:

z-test result analysis of colleges of education and universities business educators on the extent of utilization of multimedia as teaching tools for e-learning.

Colleges of education (N=125)

X	F	FX	X^2	FX^2
5	20	100	25	500
4	24	96	16	384
3	28	84	9	252
2	27	54	4	108
1	26	26	1	26
Σ	**125**	**360**		**1127**

$$\overline{X}_1 = \frac{\Sigma FX}{N}$$

$$= \frac{360}{67}$$

$$= \mathbf{2.88}$$

Universities (N=69)

X	F	FX	X^2	FX^2
5	8	40	25	200
4	11	44	16	176
2	20	60	9	180
2	16	32	4	32
1	14	14	1	14
Σ	**69**	**190**		**602**

$$\overline{X}_2 = \frac{190}{69}$$

$$= \mathbf{2.75}$$

$$S_1 = \sqrt{\frac{\Sigma FX^2}{N} - \frac{(\Sigma FX)^2}{N}}$$

$$= \sqrt{\frac{1270}{125} - \frac{360}{125}^2}$$

$$= \sqrt{10.16 - (5.53)^2}$$

$$= \sqrt{10.16 - 8.2944}$$

$$= \sqrt{1.8656}$$

$$\mathbf{S_1 = 1.37}$$

$$S_2 = \sqrt{\frac{602}{69} - \frac{190}{69}^2}$$

$$= \sqrt{8.72 - (2.75)^2}$$

$$= \sqrt{8.72 - 7.58}$$

$$= \sqrt{1.1422}$$

$$\mathbf{S_2 = 1.07}$$

z- test

$$\frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} = \frac{2.88 - 2.75}{\sqrt{\frac{1.37^2}{125} - \frac{1.07^2}{69}}}$$

$$= \frac{0.13}{\sqrt{\frac{1.8769}{125} + \frac{1.1449}{69}}} = \frac{0.2}{\sqrt{0.0150 + 0.0166}}$$

$$= \frac{0.2}{\sqrt{0.0316}} = \frac{0.13}{0.1778}$$

$$\mathbf{Z = 0.73}$$

z-critical value = degree of freedom of n1 + n2 – 2 = 125 + 69 – 2 = 192 at 0.05 level of significance = 1.96

Decision: As z-calculated value 0.73 < z critical value (1.96). The null hypothesis is therefore retained.

Hypothesis 2:

z-test result analysis of colleges of education and universities business educators on the extent of utilization of internet as teaching tools for e-learning.

Universities (N=125)

X	F	FX	X^2	FX^2
5	17	85	25	425
4	20	80	16	320
3	33	99	9	297
2	25	50	4	100
1	30	30	1	30
Σ	**125**	**344**		**1172**

$$\overline{X}_1 = \frac{\Sigma FX}{N}$$

$$= \frac{344}{125}$$

$$= 2.75$$

$$S_1 = \sqrt{\frac{\Sigma FX^2}{N} - \frac{(\Sigma FX)^2}{N}}$$

$$= \sqrt{\frac{1172}{125} - \frac{344^2}{125}}$$

Colleges of education (N=69)

X	F	FX	X^2	FX^2
5	13	65	25	325
4	14	56	16	224
3	20	60	9	180
2	6	12	4	24
1	16	16	1	16
Σ	**69**	**209**		**769**

$$\overline{X}_2 = \frac{209}{69}$$

$$= 3.03$$

$$S_2 = \sqrt{\frac{769}{69} - \frac{209^2}{69}}$$

$$= \sqrt{11.1449 - (3.03)^2}$$

$$= \sqrt{9.376 - (2.752)^2} \qquad = \sqrt{11.1449 - 9.1748}$$

$$= \sqrt{9.376 - 7.5735} \qquad = \sqrt{1.9701}$$

$$= \sqrt{1.8025}$$

$$S_2 = 1.40$$

$$S_1 = 1.34$$

z- test

$$= \frac{2.75 - 3.03}{\sqrt{\frac{1.34^2}{125} - \frac{1.40^2}{69}}}$$

$$= \frac{-0.28}{\sqrt{\frac{1.7956}{125} + \frac{1.96}{69}}} \qquad = \frac{-0.28}{\sqrt{0.0144 + 0.0284}}$$

$$= \frac{-0.28}{\sqrt{0.0428}} \qquad = \frac{-0.28}{0.2069}$$

$$Z = -1.35$$

Degree of freedom of n1 + n2 – 2 = 125 + 69 – 2 = 192 at 0.05 level of significance = 1.96

Decision: As z-calculated value (-1.35) < z critical value (1.96). The null hypothesis is therefore retained.

Hypothesis 3:

z-test result of the difference between the mean ratings of male and female business educators on their extent of utilization of blended learning as teaching tools for e learning.

Male (N = 66)

X	F	FX	X^2	FX^2
5	12	60	25	300
4	14	56	16	224
3	18	54	9	162
2	12	24	4	48
1	10	10	1	10
Σ	**66**	**204**		**744**

$$\overline{X}_1 = \frac{\Sigma FX}{N}$$

$$= \frac{204}{66}$$

$$= \mathbf{3.09}$$

$$S_1 = \sqrt{\frac{\Sigma FX^2}{N} - \frac{(\Sigma FX)^2}{N}}$$

$$= \sqrt{\frac{744}{66} - \frac{204^2}{66}}$$

Female (N = 128)

X	F	FX	X^2	FX^2
5	15	75	25	375
4	19	76	16	304
2	37	111	9	333
2	28	58	4	116
1	29	29	1	29
Σ	**128**	**349**		**1157**

$$\overline{X}_2 = \frac{349}{128}$$

$$= \mathbf{2.73}$$

$$S_2 = \sqrt{\frac{1157}{128} - \frac{349^2}{128}}$$

$$= \sqrt{9.0391 - (2.73)^2}$$

$= \sqrt{11.2727 - (3.09)^2}$ $= \sqrt{9.0391 - 7.4341}$

$= \sqrt{11.2727 - 9.5537}$ $= \sqrt{1.65}$

$= \sqrt{1.719}$

$S_2 = 1.37$

$S_1 = 1.31$

z- test

$$= \frac{3.09 - 2.73}{\sqrt{\frac{1.31^2}{66} - \frac{1.27^2}{128}}}$$

$$= \frac{0.36}{\sqrt{\frac{1.7161}{66} + \frac{1.6129}{128}}} \qquad = \frac{0.36}{\sqrt{0.0260 + 0.0126}}$$

$$= \frac{0.36}{\sqrt{0.0386}} \qquad = \frac{0.36}{0.1965}$$

$Z = 1.83$

z-critical value = degree of freedom of n1 + n2 – 2 = 66 + 128 – 2 = 192 at 0.05 level of significance = 1.96

Decision: As z-calculated value (1.83) < z critical value (1.96). The null hypothesis is therefore retained.

Hypothesis 4:

z-test result analysis of public and private business educators on the extent of utilization of telecommunication as teaching tools for e-learning.

Public (N_1 = 15)

X	F	FX	X^2	FX^2
5	2	10	25	50
4	1	4	16	16
3	2	6	9	18
2	7	14	4	28
1	3	3	1	3
Σ	**15**	**37**		**115**

Private (N_2=128)

X	F	FX	X^2	FX^2
5	25	125	25	625
4	27	108	16	432
3	37	111	9	333
2	48	96	4	192
1	42	42	1	42
Σ	**179**	**382**		**1624**

$$\overline{X}_1 = \frac{\Sigma FX}{N}$$

$$= \frac{37}{15}$$

$$= \mathbf{2.47}$$

$$S_1 = \sqrt{\frac{115}{15} - \frac{37^2}{15}}$$

$$\overline{X}_2 = \frac{382}{179}$$

$$= \mathbf{2.13}$$

$$S_2 = \sqrt{\frac{1624}{179} - \frac{382^2}{179}}$$

$$= \sqrt{9.0726 - (2.13)^2}$$

$$= \sqrt{7.6667 - (2.47)^2}$$

$$= \sqrt{7.6667 - 6.08}$$

$$= \sqrt{1.5867}$$

$$= \sqrt{9.0726 - 4.5543}$$

$$= \sqrt{4.5183}$$

S_1 = 1.26

S_2 = 2.13

z- test

$$= \frac{2.47 - 2.13}{\sqrt{\frac{1.26^2}{15} - \frac{2.13^2}{179}}}$$

$$= \frac{2.98 - 2.25}{\sqrt{\frac{1.5876}{15} + \frac{4.5369}{179}}} \qquad = \frac{0.34}{\sqrt{0.1058 + 0.0253}}$$

$$\frac{0.34}{\sqrt{0.1311}} \qquad = \frac{0.34}{\sqrt{0.3621}}$$

Z = 0.84

Degree of freedom of $n_1 + n_2 - 2 = 15 + 179 - 2 = 192$ at 0.05 level of significance = 1.96

Decision: As z-calculated value 0.84 < z critical value (1.96). The null hypothesis is therefore retained.