INVESTIGATION OF STUDENTS' ATTITUDE TOWARDS WEB-QUEST INSTRUCTION AMONG PRE-SERVICE TEACHERS IN COLLEGES OF EDUCATION KATSINA, KATSINA STATE

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FACULTY OF EDUCATION

AHMADU BELLO UNIVERSITY

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A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES AHMADU BELLO UNIVERSITY ZARIA, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF INSTRUCTIONAL TECHNOLOGY

DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM
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DECLARATION

I declare that the work in this dissertation entitled “Investigation of students’ attitude towards web-quest instruction among pre-service teachers in colleges of education Katsina, State”has been carried out by me in the Department of Educational Foundations and Curriculum. Theinformation derived from the literature has been duly acknowledged in the text and a list ofreferences provided. No part of this thesis was previously presented atany institution.

NAMADI, ZaharaddeenBala **----------** **Date----------**
Sign

CERTIFICATION

This dissertation written by ZaharaddeenBala, NAMADI (P13EDFC8009) entitled "Investigation of students' attitude towards web-quest instruction among pre-service teachers in colleges of education Katsina State'',meets part of the regulations governing the award of Masters degree in Instructional Technology of the Ahmadu Bello University Zaria, and is approved for its contribution to knowledge and literary presentation.

Prof. A. K. Tukur ---------- Date----------
Chairman, Supervisory Committee Sign

Dr. A. I. Gambari ---------- Date----------
Member, Supervisory Committee Sign

Prof. B. Maina ---------- Date----------
Head of Department Sign

Prof. Sadiq Z. Abubakar ---------- Date----------
Dean, School of Postgraduate Studies Sign

DEDICATION

This dissertation is dedicated to my parents, Late Alh. Namadi Bala and Haj. Zinatu Ahmad Anche. May Almighty Allah continue to protect and bless them all, and also may Allah reward them abundantly, amen.

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All praise is to Allah (SWT), creator of the world and its contents, the beneficent and the merciful. Peace and blessing of Allah be unto His messenger, Prophet Muhammad (SAW). I wish to express my profound gratitude and appreciation to my supervisor,Prof. A.K Tukur,who did not only conscientiously go through the write-up several times, offering valuable suggestions but also made him reading available for consultation, expert advice,and guidance at every period of this work. May Allah bless you abundantly, Ameen.

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ABSTRACT

This study investigated the pre-service teachers' attitudes towards web-quest instruction in Colleges of Education Katsina state. Six research questions and four hypotheses were drawn to guide the study. A Survey research design was adopted to conduct the study. Related literaturewas reviewed after the conceptual framework based on the major variables of the study. The population of the study comprises of all the pre-service teachers' in Colleges of Education in Katsina State. 6,840 and a sample size of 364 pre-service teachers were used for the study; using cluster, simple random and proportional sampling techniques. A modified questionnaire tagged pre-service teachers' attitude towards web-quest instruction for learning geography concept and their self-efficacy toward the use of web-quest instruction for learning geography concept was used for data collection. It was designed under three different sections and harmonized in one single questionnaire. The content validity of the instrument was ascertained, and copies of the questionnaires were pilot tested in UsufuBalaUsman College of Legal and advanced studies Daura to ascertain the reliability of the instrument. The reliability coefficient of 0.92 for section B and 0.88 for section C was obtained at 0.05 level of significant. The percentage was used to interpret the demographic data of the study. Data collected on the basis of the research questions set in chapter one were analyzed using descriptive statistics (i.e. frequency, percentage, and mean). The limit for decision rule: An average mean of 2.50 and above was considered as agreed, while an average mean of 2.49 and below was considered disagreed with respect to research questions. Mann-WhitneyIndependent test is used to answer hypotheses one and three while Kruskal-Wallis test is used to answer hypotheses two and three. The null hypotheses one and three were rejected and null hypotheses two and four were accepted. The findings of this study revealed that age has no significant influence in the pre-service teachers' attitude towards

web-quest instruction for learning geography concept and also gender has a significant influence on the pre-service teachers' attitude toward web-quest instruction for learning geography concept. This study recommends, among others, that the Government, National Commission forColleges of Education and the management of Colleges of Education should join hands together and ensure that computer laboratories are available in COE with adequate functional computer hardware and software and functional internet facilities that will cater for the need of both staff and students.

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LIST OF ABBREVIATIONS

UNESCO: United Nations Educational, Scientific and Cultural Organization

WQI: Web-quest Instruction

NITDA: National Information Technology Development Agency

NCATE: National Council for Accreditation of Teachers Education

CAL: Computer Assisted Learning

ISTE: International Society for Technology in Education

IT: Information Technology

MANCOVA: Multivariate Analysis of Covariance

PPMCC: Pearson Product Moment Correlation Coefficient

SPSS: Statistical Package for Social Science

SD: Standard Deviation

N: Number

DF: Degree of Freedom

OPERATIONAL DEFINITION OF TERMS

9.1.1 Operational Definition of Terms

The following terms are defined in their relationship with this study as follows:

Web-quest: Web-quest is an inquiry-oriented lesson format in which most or all the information that learners work with comes from the web. These can be created using various programs, including a simple word processing document that includes links to websites.

Attitude: Is a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation**.** Krueger and Reckless (1931) defined attitude as a residuum of experience which conditions and controlsfurther activity. In this way, they can be viewed as acquired tendencies to act in specific ways, towards oragainst an environmental factor which is imbued with either negative or positive value. More recentresearch indicates that attitude represents a summary evaluation of a psychological object and is describedboth internally and externally in dimensions such as good-bad, likable-dislikeable, harmful-beneficial,pleasant-unpleasant (Ajzen&Fishbein, 2000; Eagly&Chaiken 1993).

Pre-service Teachers: Are education and training provided to student teachers before they have undertaken any teaching.

Self-Efficacy (SE): Is the belief or perception of a person that he or she is capable to perform a specific task. It is a dynamic element that influences other concepts such as goals, performance and is influenced by them.

Gender: Refers to the social roles that men and women play and the power relations between them, which usually have a profound effect on the use and management of natural resources. Gender is not based on sex, or the biological differences between men and women.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Information and Communication Technologies (ICTs) have become key tools and have a revolutionary impact on how people see and live in the world. The place of ICTs in education and the world, in general, cannot be ignored. Modern day businesses are conducted and facilitated through the use of telephones, fax machines, and computer communication networks through the internet. This phenomenon has given birth to the contemporary e-commerce, e-government, e-medicine, e-banking, and e-education among others. Bandele (2006) summed up that ICT is a revolution that involves the use of computers, internet, and other telecommunication technology in every aspect of human endeavor. He posited that ICT is simply about sharing and having access to data with ease. It is regarded as the super highway through which information is transmitted and shared by people all over the world.

Web-Quests have become an effective method of incorporating technology with educational concepts. In an interview, Dodge stated his intention for creating a Web-Quest sparked from an interest in allowing his students to further connect with his in-class lesson (Starr, 2000). Using his knowledge of educational technology, Dodge was able to gather information and resources online to support his lesson plans. His creation of a student-centered activity had the ability to integrate online resources with activity-based learning (Dodge, 1995). The development of higher-order thinking skills with content-based learning in the Web-Quest format may prove to be successful, but further research is needed in this area. March (2000), one of the co-developers, states that Web-Quests "allow students to construct meaning on a complex topic, preferably in a way that motivates working together and testing ideas in a real-world

context" (2000, p.55). March has been another major proponent of Web-Quests in education and has contributed to the understanding of their use. His research addresses basic uses of Web-Quests in scaffolding, prompting, and procedural facilitation with various content areas.

Teachers also have the option of developing Web-Quest activities with Fila mentality, a less invasive process requiring less instruction. Through appropriate planning and development, teachers are learning how to effectively implement lessons that facilitate inquiry-based learning (Tom 2000; Lipscomb, 2003; Peterson, Caverly, & MacDonald, 2003; Starr, 2000a). This structured format shifts the focus to student-centered learning through instructor-facilitated instruction and guidance.

Successful implementation of Web-Quests, particularly in geography education, lends credibility to the simplicity of the concept – increasing student learning through active experimentation. This implementation of Web-Quests in various other fields of study continues to make a major impact on the instructional strategies employed by faculty (Seamon, 2001; Lipscomb, 2003; Peterson, 2003). In addition, the concept of Internet discovery has improved the ability of the student to construct his/her own learning through Web-Quest activities (Seamon, 2001). Essential in this process of discovery is the instructor's ability to create effective navigation through a web page storyboard. In this process, the instructor is able to create a flowchart to identify the natural progression a student will follow through a Web-Quest project. Ease of navigation is one of the most central concepts that must be implemented in order to facilitate online learning (Seamon, 2001). In this process, an instructor must guide a student through the question, search, interpretation, composition, and sharing to take the online information and synthesize a meaningful output. This discovery method promotes ownership of the student's learning and Seamon suggests incorporating a writing activity upon completion of

the Web-Quest to allow students the opportunity to reflect on their findings. Lipscomb (2003, p152), this activity is "gaining popularity with teachers and students for its ability to interact with online resources" and connect it to writing activities. Scott (2000) also discusses similar findings of connecting with the material through research, synthesizing, and information writing. This is particularly important in connecting with the material in education. As Lipscomb (2003), states students will "develop more meaningful ideas of the past if it is personalized," and this concept is highly relevant for historical events (154).

Web-Quests continue to be a successful method of allowing the student to connect with material through online resources. The primary concern, as an instructor, regards setting up a problem or task for the student to accomplish. Setting up a task also requires adequate prompting to ensure that the student investigates the correct online references. Currently, much of the research published on Web-Quests describes methods of implementing this tool into classroom instruction. Although instructors have developed most Web-Quests, some research has revealed that student-developed Web-Quests are also being implemented in classes (Peterson, 2003). This method of student-centered instruction relies on the technological ability of the students and the instructor in order to create an effective outcome and remains in the infancy of Web-Quest implementation.

Using Web-Quests in education with pre-service and in-service teachers may yield similar results to King's study with the MUTEBI instrument. Future analysis of Web-Quest effectiveness may include additional evaluations of the product with the student's ability to integrate the activity into a classroom setting. An assessment of the Web-Quest produced by pre-service and in-service teachers combined with additional evaluation with the course implementation may yield the most statistically significant results.

Student attitudes toward Web-quest influence the future use of computers in instruction (Sanders and Morrison-shetler, 2001). This issue encourages many researchers to assess students' overall attitude toward web-quest instruction. Variables such as gender, age, and prior computer experience were found to influence student's attitude toward web-quest instruction (Hill, 2000; Price and Winiecki, 1995; Smith and Necessary, 1996; Moon, 1994). Attitudes of students toward web-quest instruction have influence over the future use of web-launched instructional materials. They, also determine the extent to which web-based resources are educationally beneficial for students in classroom learning environment (Sanders & Morrison-shetler, 2001). Some studies (e.g. Bangert, 2004; Foster, 2003; Hill, 2000), have concluded that one important indicator of future web use is providing useful information appropriate to the course being thought. Moreover, a positive correlation was found between instructors of web-quest training materials and students' participation in the use of web-based recourses, consequently influencing student learning through the web.

Self-Efficacy (SE) is the belief or perception of a person that he or she is capable to perform a specific task. It is a dynamic element that influences other concepts such as goals, performance and is influenced by them. SE is an essential element in Social Cognitive Learning Theory. it plays a role in connecting goals, performance, and motivation concepts especially in the areas of e-learning and instruction. it is one of the individual related concepts that function as a mediating mechanism among these concepts. Various research results show that SE may be a good predictor of performance. Since SE may be a good predator of performance, managers may try to assess the SE of candidates to predict their potential performance in the area of e-learning and instruction, thus regulating their human resources practices such as selection, adjustment, manager development etc.

Gender and age difference in the attitude toward technology use has long been a concern in education. The last meta-analysis on this issue covered the empirical studies up to about 20 years ago. Since then, technology use has increased exponentially, and many more empirical studies have examined this issue but showed inconsistent findings. As a result, there is a lack of clear understanding about if such gender and age difference still persists. The purpose of this research is to re-examine this issue by meta-analyzing the empirical research studies on this issue in the last two decades and to examine the potential moderators that may have contributed to the heterogeneity of the research findings. A total of 50 articles from 1997 to 2014 were identified and used in this meta-analysis. The findings indicated that males still hold more favorable attitudes toward technology use than females, but such differences would be characterized as small effect sizes. The comparison between this study and the last meta-analysis of about two decades ago suggested that there was an only minimal reduction in the gender and age attitudinal gap in general. But when the general attitude was broken down to different dimensions of attitude, the present study showed a reduction of gender difference in the dimension of *Affect* and *Self-efficacy*, but not in the dimension of *Belief*. The limitations of the study were noted, and the implications and future research directions were discussed.

The emergence of the World Wide Web as a pipeline for learning will have a profound effect on the manner in which our students learn and we teach. As Koone (2000) states; “from web-based technology are converging in rapid and radical ways. Specifically, web-quest instruction (WQI) can be used to meet the needs of a more diverse student group. Typical classes consist of students with varying abilities and previous knowledge, and web-quest instruction (WQI) can help a student to address these differences. Web-quest instruction (WQI) also allows students to work a pace that is more comfortable - some students work faster than their peers

while others may wish to take longer. In addition, the use of web-quest instruction (WQI) provides the opportunity for multiple grade levels to be accommodated in the same classroom at the same time, also an added bonus of Web-quest Instruction is the fact that it can offer students a "virtual teacher" because students can access the instructional materials anytime, anywhere. This allows students who were absent the opportunity to access instructional materials away from school, and even the possibility to accommodate students in a course when their schedule is full. This study, therefore, investigates pre-service teachers' attitude towards web-quest instruction among pre-service teachers in colleges of education Katsina state.

1.2 Statement of the Problem

It is evident that many pre-service teachers in Colleges of Education in Nigeria still rely much on the traditional lecture method of teaching neglecting the intrinsic value of the use of ICT. There is still low level of enlightenment among pre-service teachers on access and utilization of the emerging trends of ICT for the better Educational enterprise. A large number of pre-service teachers rarely access and utilize the tremendous intrinsic value of ICT in discharging their responsibilities as teachers. It has been observed that their inadequate computers as well as internet facilities in use in most of the colleges of education in Nigeria. In that sense, the traditional lecture method persistently dominates most of the teaching and learning activities. This clearly shows that pre-service teachers are still left behind from the emerging trends of ICT. Therefore, teachers and students are too large extent deprived of exploiting the potentials offered by ICTs in teaching-learning process for better achievement of the Educational goals.

It is high time to replace the traditional pedagogical practices that still underpin the educational system in this country, hence the call for the application of web-quest in the

education system. Besides, many Nigerian teachers and students' have been unable to find effective ways to utilize web-quest application in their instruction and learning. The possible explanation for this lack of success by teachers is not only that the utilization of web-quest instruction in the classroom has not been encouraging and teachers are not trained in using web-quest application in teaching as a means for educational sustainability, but the level of the teachers' self-efficacy and computer skills to the use of web-quest application has been very minimal.

Attitude has been found to be a barrier toward web-quest instruction among pre-service teachers in colleges of education Katsina State because most of the pre-service teachers in those institutions are not exposed to the use of the web-quest application by their lecturers that is why most of the pre-service teachers' shows a negative attitude toward it. This study, therefore, was carried out to investigate the student's attitude toward web-quest instruction among pre-service teachers in colleges of education Katsina, Katsina state after they have been exposed to web-quest application package of geography concept.

1.3 Objective of the Study

This study seeks to investigate the students' attitude towards web-quest instruction among pre-service teachers in colleges of education Katsina state. Specifically, the study will investigate:

i. the attitude of pre-service teachers towards the use of web-quest instruction for learning geography concept.
ii. the pre-service teachers' self-efficacy on the use of web-quest for learning geography concept

iii. the difference between male and female pre-service teachers' attitude towards web-quest instruction for learning geography concepts.

iv. the influence of age on pre-service teachers' attitude towards the use of web-quest instruction for learning geography concepts.

v. the difference between male and female pre-service teachers' self-efficacy on the use of web-quest instruction for learning geography concepts.

vi. the influence of age on pre-service teachers' self-efficacy on the use of web-quest instruction for learning geography concept.

1.4 Research Questions

The following research questions were raised to guide the study:

i. what is the attitude of pre-service teachers towards the use of web-quest instruction for learning geography concept?

ii. what is the pre-service teachers' self-efficacy on the use of web-quest for learning geography concept?

iii. what is the difference between male and female pre-service teachers' attitude towards web-quest instruction for learning geography concepts?

iv. what is the influence of age on pre-service teachers' attitude towards the use of web-quest instruction for learning geography concepts?

v. What is the difference between male and female pre-service teachers' self-efficacy on the use of web-quest instruction for learning geography concepts?

vi. What is the influence of age on pre-service teachers' self-efficacy on the use of web-quest instruction for learning geography concept?

1.5 Hypotheses

The following null hypothesis was formulated and will be tested at 0.05 levels of significance:

i. there is no significant difference between male and female pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept.

ii. there is no significant difference in the pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept based on the age difference.

iii. there is no significant difference between male and female pre-service teachers' self-efficacy on the use of web-quest instruction for learning geography concept.

iv. there is no significant difference in the pre-service teachers' self-efficacy on web-quest instruction for learning geography concept based on age difference.

1.6 Basic Assumptions

For the purpose of this study, it is assumed that:

i. Pre-service teachers are familiar with the use of web-quest application for learning geography concept.

ii. Male and female pre-service teachers' attitude could be determined after exposes to web-quest instructional package on geography concept.

iii. Pre-service teachers in the same class have age difference which might influence their attitude.

iv. Pre-service teachers in the same level may differ in the level of self-efficacy possesses which may influence their attitude toward the use of web-quest instruction for learning geography concept.

1.7 Significance of the Study

This study will be significant to pre-service teachers, lecturers, colleges of education management, National Commission for Colleges of Education (NCCE), and many others. It is hoped that this study has potential to accelerate, enrich and deepen basic skills in teaching and learning some concept of geography. Web-quest could help pre-service teachers in motivating and encouraging their learning, as they are encouraged to be more independent and responsible for their own learning. Most importantly, this study provide basic understanding of Web-quest instruction in education and strengthens teaching and learning, providing powerful resources and services for students, thereby enabling them to meet their individual needs. Thus teachers and students are more connected to each other.

This study serve as a useful document and also of great benefits to National Commission for Colleges of Education (NCCE), the body responsible for teacher training in Nigeria with the detailed information about the perception of students towards Web-quest Instruction. This help students and lecturers to understand the importance of Web-quest Instruction by incorporating it into their curriculum. The study will contribute to current literatures and other researches, embarked on similar field of research on the aspect of Web-quest Instruction utilization.

The study will serve as a resource material for institutions of learning that have yet to employ web-quest technology for instructional delivery. This means that essentially, the findings will provide information on utilization of web-quest instruction as well as recommendation on how to effectively address some factors that militate against the use of web-quest instruction and also provide detail information to the pre-service teachers of Colleges of Education about the usage of web-quest instruction.

The study will have revealed to the lecturers and students by highlighting the important features of web-quest instruction technology in the area of effectiveness and efficiency of teaching and learning. With web-quest instruction technology, the students will be able to listen to previous lectures delivered many times because the tool is capable of saving and previewing delivered lectures. On the part of the lecturers, it helps in time management and easy retrieval of information during lecture presentation. The study reveal the relevance, effectiveness and efficiency of teaching and learning with the web-quest instruction to the students, stakeholders, educational planners and the society at large.

In the same vein, the findings of the study help to enlighten the students more on the significant of Web-quest instruction. It is anticipated that the research results would give colleges' administrators valuable insight into the efficiency of Web-quest Instruction, identify the areas of strengths and weaknesses, needs of the lecturers and students, evaluation of the services being offered, as well as area(s) that needs improvement. It is expected that those who are concerned with ICTs programmed like the Ministry of Communication and Technology, National Information Technology Development Agency (NITDA) may use the findings from this study to speed up campaign on the use of Web-quest in instructional Praxis. This might be done through stakeholders' interactive session and comments, seminars and conducting capacity building activities for teachers. The Findings from this study might also benefit researchers by adding to the pool of information that already exists in this area. Researchers can therefore fall back on information gathered here by replicating this study in another setting.

It is also hoped that this study bring new ideas and practical action among all stakeholders in both the policy realm and in higher education research environment. The recommendations

arising from the findings will guide the NCCE management in setting priority for strategic planning in the area of Information Communication Technologies (ICTs).

1.8 Scope of the Study

This study covered two Colleges of Education in Katsina state. The Colleges include Federal College of Education Katsina state, and Isa Kieta College of Education Dutsinma. This study was also centered on students' attitude toward the use of web-quest instruction among pre-service teachers' in Colleges of Education Katsina state. In addition, the study was focused on web-quest instruction use on geography concept. It specifically, covered transportation, rocks, and settlement.

CHAPTER TWO

REVIEW OF LITERATURE

2.1.1 Introduction

This chapter is the review of the previous studies relevant to the research being undertaking. The review has been organized under the following sub-headings: theoretical framework, conceptual framework, meaning of web-quest, influence of gender on pre-service teachers' attitude towards web-quest, influence of computer skills on pre-service teachers', attitude towards web-quest, influence of age on pre-service teachers' attitude towards web-quest, empirical studies and summary all were discuss in this chapter.

2.2 Theoretical Framework

This study intends to adopt Rogers's Diffusion of innovation theory and Connectivism theory.

2.2.1 Roger's Diffusion of Innovation Theory: The theory was developed by Roger, in 2003 in order to bring to light new innovations and their modes of adoption. This study considers web-quest technology as a recent innovation in Nigeria particularly in the area of Educational instruction. Though application of technology in teaching and learning process is gaining momentum both in developed and developing countries, but careful examination of the impact of the technology, attitude and self-efficacy of users of this technology particularly in Nigeria is paramount.

The process of adopting new innovations has been studied for over 30 years, and one of the most popular adoption models is described by Rogers in his book, *Diffusion of Innovations* (Sherry & Gibson, 2002). Much research from a broad variety of disciplines has used the model as a theoretical framework. Dooley (1999) and Stuart (2000) mentioned several of these disciplines as political science, public health, communications, history, economics, technology,

and education, and defined Rogers' theory as a widely used theoretical framework in the area of technology diffusion and adoption's.

Rogers' diffusion of innovations theory is the most appropriate for investigating the adoption of technology in higher education and educational environments. In fact, much diffusion research involves technological innovations, usually used the word "technology" and "innovation" as synonyms. For Rogers, "a *technology* is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving the desired outcome". It is composed of two parts: hardware and software. While the hardware is the tool that embodies the technology in the form of a material or physical object, while software is the information base for the tool. Since software (as a technological innovation) has a low level of observability, its rate of adoption is quite slow. For Rogers (2003) adoption is a decision of full use of an innovation as the best course of action available and rejection is a decision not to adopt an innovation. Therefore Rogers (2003) defines diffusion as the process in which an innovation is communicated through certain channels over time among the members of a social system. As expressed in this definition, innovation, communication channels, time, and social system are the four key components of the diffusion of innovations theory for adoption technology in the areas of teaching and learning process.

Behaviorism, cognitivist, and constructivism are the three broad learning theories most often utilized in the creation of instructional environments. These theories, however, were developed in a time when learning was not impacted by technology. Over the last twenty years, technology has reorganized how we live, how we communicate, and how we learn. Learning needs and theories that describe learning principles and processes should be reflective of underlying social environments. Vaill emphasizes that "learning must be a way of being – an

ongoing set of attitudes and actions by individuals and groups that they employ to try to keep abreast of the surprising, novel, messy, obtrusive, recurring events…" (1996, p.42).

Learners as little as forty years ago would complete the required schooling and enter a career that would often last a lifetime. Information development was slow. The life of knowledge was measured in decades. Today, these foundational principles have been altered. Knowledge is growing exponentially. In many fields, the life of knowledge is now measured in months and years.

2.21 Connectivism Theory: Connectivism also addresses the challenges that many corporations face in knowledge management activities. The knowledge that resides in a database needs to be connected with the right people in the right context in order to be classified as learning. Behaviorism, cognitivism, and constructivism do not attempt to address the challenges of organizational knowledge and transference. Social network analysis is an additional element in understanding learning models in a digital era. Art Kleiner (2002) explores Karen Stephenson's "quantum theory of trust" which "explains not just how to recognize the collective cognitive capability of an organization, but how to cultivate and increase it". Within social networks, hubs are well-connected people who are able to foster and maintain knowledge flow. Their interdependence results in effective knowledge flow, enabling the personal understanding of the state of activities organizationally. The starting point of connectivism is the individual. Personal knowledge is comprised of a network, which feeds into organizations and institutions, which in turn feed back into the network, and then continue to provide learning to the individual. This cycle of knowledge development (personal to network to the organization) allows learners to remain current in their field through the connections they have formed.

The notion of connectivism has implications for this study. Therefore it largely focuses on its impact on learning through the use of the internet, but the following aspects are also impacted to these study: Realizing that complete knowledge cannot exist in the mind of one person requires a different approach to creating an overview of the situation. Diverse teams of varying viewpoints are a critical structure for completely exploring ideas. Innovation is also an additional challenge. Most of the revolutionary ideas of today at one time existed as a fringe element. An organizations ability to foster, nurture, and synthesize the impacts of varying views of information is critical to knowledge economy survival. The speed of "idea to implementation" is also improved in a systems view of learning. Therefore the pipe is more important than the content within the pipe. Our ability here is to learn what we need for tomorrow is more important than what we know today. A real challenge for any learning theory is to actuate known knowledge at the point of application. When knowledge, however, is needed, but not known, the ability to plug into sources to meet the requirements becomes a vital skill. As knowledge continues to grow and evolve, access to what is needed is more important than what the learner currently possesses.

Connectivism presents a model of learning that acknowledges the tectonic shifts in society where learning is no longer an internal, individualistic activity. How people work and function is altered when new tools are utilized. The field of education has been slow to recognize both the impact of new learning tools and the environmental changes in what it means to learn. Connectivism provides insight into learning skills and tasks needed for learners to flourish in a digital era.

2.3. Conceptual Framework

Web-quest is an inquiry-oriented lesson format in which most or all the information that learners work with comes from the web. These can be created using various programs, including a simple word processing document that includes links to websites. Web-quests are inquiry-based activities through which students interact with resources on the Internet (Dodge, 1995). They are structures that aim to support student works based on an application of technology. The many reasons to use Web-Quests include the construction of collaborative activities, the improvement of critical-thinking skills, enhancement of motivation, the development of social skills, and the chance of concrete, hands-on experience (Leahy & Twomey, 2005). March, (1998) reported that Web-Quests were designed to bring together the most effective instructional practices into one integrated student activity.

Web-quest originated by Bernie Dodge and Tom March, in 1995, the Web-Quest has been widely adopted in K-16 classrooms in more than 40 states in the USA, and in 10 countries and regions worldwide, including Australia, Brazil, Canada, Hong Kong, Germany, New Zealand, and so forth (WebQuest.Org 2005). It provides teachers with an instructional framework to create meaningful online learning activities. A well-designed web-quest typically contains six steps: introduction; task; information sources; description of process; performance evaluation; and conclusion.

web-quest is generally constructed around a scenario of interest to students who work in small groups by following the steps in the web-quest model to examine the problems, propose hypotheses, search for information with the web links provided by the instructor, analyze and synthesize the information using guided questions, and present solutions to the problems. Students are often assigned with certain roles in the group, by working on the topics in the area

in which they assume a role; students collectively contribute to the understanding of the issues with considerable breadth and depth. The instructor scaffolds learners through the entire learning process using a structured approach.

Since its inception, the web-quest model has been embraced by many educators. Numerous web-quests have been created by teachers for all grade levels (Mac Gregor & Lou 2004/2005). Research indicates that web-quests can promote students' critical thinking, facilitate knowledge application, and develop their collaborative skills in learning (Dodge 1995; Brucklacher & Gimbert 1999; Zheng. 2005). Schweitzer and Kossow (2007) describe how to use Web-Quests to teach the subject of cloning to a group of gifted students in 6–12 grades. Students are challenged to explore the nature of cloning and its impact on research community and society. By assuming the different role as a scientist or a sociologist, students from small groups to examine the issues and propose hypotheses with regard to the impact of cloning research on their respective fields. They then search for information about cloning with the web links provided by the instructor, and use several questions to guide their work, such as 'Do you think cloning is ethnical?' and 'What are the potential benefits and potential risks of further exploration of cloning?' Information obtained from the Internet is analyzed and synthesized through group negotiation to generate useful data to support or reject the hypotheses proposed.

Finally, the conclusions reached by each group (i.e., scientists and sociologists) are converged to a comprehensive view that reflects the depth and breadth of this controversial issue. The entire learning process is scaffold by the instructor using the six-step design model of Web-Quests and evaluated with a rubric developed by the instructor. Schweizer and Kossow (2007) observe that with Web-Quests, students are motivated to learn content information and engaged in 'higher level thinking skills required completing the task' (p. 34). They find that students

appreciate the collaborative learning in which they collectively contribute to the success of the project. Their findings are supported by the study conducted by Milson and Downey (2001), who conclude that Web-Quests (a) help students engage in meaningful and dynamic learning by working as a team to solve problems related to the real world; (b) facilitate effective learning by providing structured resources so that learners do not have to 'spend time engaged in fruitless searching' (p. 146); and (c) enable teachers to efficiently use computer resources in classrooms.

Web-Quests incorporate technology with educational concepts through integrating online resources with student-centered, activity-based learning. Sunal and Haas (2002), Web-Quests are problem-solving activities for students that incorporate the Internet, computer-based materials, and other available resources. In social studies education, Web-Quests provide the opportunity for students to actively engage in learning by connecting their interests with various content areas. Social studies educators, similar to those in other content areas, must adapt their instructional practices to accommodate the needs of their students. With increased accessibility to information due to the Internet, students are able to collect large amounts of information on a specific topic. Through a Web-Quest assignment, a student is given a task to direct his/her inquiry within the content. This approach allows the instructor to direct the student-centered learning experience without too much control over the process. In contrast to in-class assignments, Web-Quest assignments also allow the student to interact with the material outside of class time. This helps to enhance the retention of information by connecting the student with the process of learning.

In order to effectively implement a Web-Quest assignment, the schools must understand the various needs of each student involved. Each instructor must be able to understand the design and organization of a Web-Quest as well as the student resources available to deliver the

appropriate content. Many graduate students in teacher education programs are often exposed to technology in the classroom and may also develop Web-Quests in these courses. These pre-service and in-service teachers are given instruction as well as resources to create their own project in a number of content areas.

2.4 Pre-service teachers' attitude towards web-quest instruction

Inquiry-based learning (IBL) is a classroom project-oriented teaching approach based on constructivist and social constructivism theories of learning. Similarly, Howe and Strauss (2000) postulate that inquiry is a learning strategy that conceptualizes the idea of giving students the opportunity to create new knowledge from the available information given to them. Inquiry-based learning and constructivist activities are therefore essential at a time like this. They are effective tools the teacher needs in this contemporary time for preparing the nation builders and inculcating in their learners the skills and abilities needed for them to be key players in the global village (Bertram and Lunsford, 2004). There is no time in the history of mankind when there are more access to information – useful and unuseful ones than now. Learners in modern society are being exposed to more information than they need hence, the need for them to acquire better skills on how to process this information.

Web-Quest is probably one of the media specially designed to achieve this by inculcating in the learners the ability to work with and sort out information. Expatiating on the importance of Web-Quest, Kamat, and Shinde (2009) say Web-Quest as an aspect of interactive multi-media inculcates in the learners' skill and ability that helps them to work with information better in an information-driven age. It also equips them with the skills needed to function maximally and efficiently in the real world. Furthermore, Web-Quest activity is designed to promote student's ability to inquire and collaborate, as well as increase students' interest in learning, while

participating in an Internet-based unit. Muller, Elkund and Shaman (2006) combination of multi-media and inquiry and discovery approach that engages students' interest raise their critical abilities, focus their learning by providing subject matter of sufficient importance to help them build new mental patterns while discarding some old assumptions. Johnson and Johnson (1999) also argued against the lecture method, in a collaborated research study titled "Computer-mediated collaborative learning, an empirical evaluation" two cited the failure of lecture method to actively engage students. It was argued that lecture method relegates students to the role of passive spectators. Hence the two advocates for the use of technology-enhanced instruction. There is little or no argument on whether learners think technology aids their learning, but the problem is if the learners know whether technology is good for them or not. In Nigeria, the need to effectively enhance the learning process and to ensure efficiency is urgent in the classroom teaching. Their argument is strongly in favor of using technology to facilitate instruction and augment the teacher's effort. Hammond and Berry (2000) are of the opinion that, the current emphasis is ensuring that technology is used effectively to create new opportunities for learning and to promote students' achievements. Therefore, this study sets out to investigate the pre-service teachers' attitude and the perceived benefits of using Web-Quests to aid their learning, skill acquisition, and the influence of gender, difference of age on the pre-service teachers' attitude and perceived benefits of using Web-Quest for teaching at the Colleges of Education level.

2.5 Influence of gender on pre-service teachers' attitude toward web-quest instruction.

Gender differences and the use of web-quest instruction have been reported in several studies. However, studies concerning pre-service teachers' gender and web-quest use have cited female pre-service teachers' have low levels of web-quest use due to their limited technology

access, skill, and interest (Volman and van Eck, 2001). Research studies revealed that male pre-service teachers used more ICT in their teaching and learning processes than their female counterparts (Kay, 2006; Wozney, 2006). Similarly, Markauskaite (2006), investigated gender differences in self-reported ICT experience and ICT literacy among first-year graduate trainee teachers. The study revealed significant differences between males and females in technical ICT capabilities and situational and longitudinal sustainability. Males' scores were higher.

Jamieson-Proctor, Burnett, Finger, and Watson (2006) conducted a study on pre-service teachers' integration of web-quest in schools in Queensland State. Results from 929 pre-service teachers indicated that female pre-service teachers were integrating technology into their teaching less than the male teachers. But the situation was different in mid-western US basic schools where Breisser (2006) found that females' self-perceptions about technology competence improved while males' self-perceptions about technological dominance remained unchanged in a lego-logo project. The study was in agreement with (Adams, 2002) that female teachers applied ICT more than the male teachers. This study confirms a report by Yukselturk and Bulut (2009) that gender gap has reduced over the past years, presently, a greater number of females than males have used the internet and web-quest technologies. However, some studies revealed that gender variable was not a predictor of web-quest integration into teaching (Norris, Sullivan, Poirot & Soloway, 2003). In a research conducted by Kay (2006), he found that male pre-service teachers had relatively higher levels of computer attitude and ability before computer implementation, but there was no difference between males and females regarding computer attitude and ability after the implementation of the web-quest technology. He claims that quality preparation on technology can help lessen gender inequalities.

There have been considerable investigations carried out on the gender issue regarding the use of computer technology. The findings of these studies are varied. According to Watson (1997), although the pre-service teachers are supposed to be confident and competent users of information technology, they have been insufficiently prepared by their pre-service education programs. Watson (1997) reported that majority of the pre-service teachers had low computer self-efficacy and expressed negative feelings regarding information technology. These views were related to gender and age. The role of gender differences in using web-quest technology for learning has been extensively studied in many disciplines such as mathematics education, science education and foreign language education (Crocco, 2008; Cheung an& Lee, 2011; Hu & Hui, 2011; Yau & Cheng, 2012). In these studies, they reported that males are more dominant and have more tendencies in the use of technology than females. They also claimed that males have higher motivational attitudes toward the use of technology than females. Though it has been perceived that male students are more confident in using technology and less anxious to use it for learning than female students, nowadays there has been an increase in the use of technology by female students (Dhindsa & Shahrizal-Emran, 2011). Moreover, Yau & Cheng (2012) added that using technology has positive impacts on both male and female pre-service teachers' attitudes and motivation. However, Yau & Cheng (2012) claimed that male undergraduate students are more confident in using technology (e.g., AutoCAD, SPSS, and some programming language such as C, Java, visual basic, etc.) for learning than female pre-service teachers. They explained this result with the use of technology by parents, teachers, and peers for learning. In other words, the social environment in which parents, teachers, and peers use technology for teaching and learning seems to play important roles in the confidence of male undergraduate students.

Moreover, Yau & Cheng (2012) added that using technology has positive impacts on both male and female undergraduate students' attitudes and motivation.

Kay (2006) reviewing so many studies on gender issue and computer-related behaviors claimed that there were gender-related differences with reference to computer attitude, ability, and use between males and females favoring males. In other words, Kay (2006) stated that males had more positive computer-related attitudes, higher ability, and they used computers more than females. Kay added that the mentioned variables are important for pre-service teachers because they have prominent effects on future students. According to several research studies (i.e., Yuen & Ma, 2002; Shapka & Ferrari, 2003; Aust, 2005), there has been limited research done on the gender-related differences in computer-related behaviors of pre-service teachers. For instance, Aust (2005) found that there was a gender difference with reference to the basic
skills and presentation software between male and female pre-service teachers in favor of male pre-service teachers and that there was no gender difference detected regarding ability in online skills, word processing spreadsheet and database software. Similarly, Shapka & Ferrari (2003) claimed that there were no gender differences in computer attitudes, computer use, and completion of a computer task. Furthermore, Yuen & Ma (2002) reported no gender differences in perceived usefulness of computers, ease of use, or intention to use computers.
However, several research findings have documented that the gender difference between males and females has continued to exist in regard to computer-related behaviors. Females had lower computer self-efficacy, less positive image of computers, and less sex-roles stereotyping of computers than males (Whitley, 1997).

Computer attitude is the most frequently examined construct with respect to gender differences, representing more than half of all studies (Kay, 1992; Whitley, 1997; Sanders, in

press). Out of 98 instances of attitude measurement (two or more attitude measures may occur in a single study), males had more positive attitudes in 48 (49%) studies, females had more positive attitudes in 14 (14%) studies, and males and females had similar attitudes in 36 (38%) studies (Kay,1992). This pattern was supported by Whitley's (1997) meta-analysis where U.S. and Canadian male participants exhibited greater sex-role stereotyping of computers, higher computer self-efficacy, and more positive affect on computers than females. A further review of 42 studies and 97 instances of attitude measures reviewed for this article, indicated that males had more positive computer attitudes in 40 (41%) cases, females were more positive in 16 cases (16%), and no difference between males and females in 41 (42%) cases. This attitude bias in favor of males, then, has been quite stable for over 20 years. It is worthwhile to look at the specific attitude constructs assessed. The wide variety of measures used to examine gender differences can be organized into five categories: affective, cognitive, self-efficacy, sex-bias, and behavioral intentions.

2.6. Influence of self-efficacy on pre-service teachers' attitude towards web-quest application for learning

Computer self-efficacy is defined as being able to handle a wide range of varying computer applications for various purposes (van Braak, 2004). Berner (2003), Na (1993) and summers, (1990) as cited in Bordbar (2010), pre-service teachers' computer skills is a major predictor of integrating web-quest in teaching. Evidence suggests that majority of pre-service teachers who reported negative or neutral attitude towards the integration of web-quest into teaching and learning processes lacked knowledge and skills that would allow them to make "informed decision" (Al- Ottawa, 2002, p.253, as cited in Bordbar, 2010).

In a qualitative multiple case-study research on primary school competence and confidence level regarding the use of ICT in teaching practice conducted in five European

countries, Peralta & Costa (2007) found that technical competence influenced Italian teacher's use of ICT in teaching. However, the teachers cited pedagogical and didactic competences as significant factors if effective and efficient educational interventions are likely to be implemented. In Portugal, teachers reported different views regarding the most important competences for teaching with ICT. The experienced and new teachers stressed the need for technical skills and attitude, the innovative teachers' emphasized curricula and didactic competences and the student-teachers cited technical competence and pedagogical efficiency as significant to integrate ICT in teaching and learning processes. According to Peralta & Costa (2007), pre-service teachers with more experience with computers have greater confidence in their ability to use them effectively. To conclude, Jones (2004) reported that pre-service teachers' competence relates directly to confidence. Teachers' confidence also relates to their perceptions of their ability to use computers in the classroom, particularly in relation to their student's perceived competence.

Research has been conducted on pre-service teacher's self-efficacy and reported to have a greater effect on their use of ICT. Self-efficacy is defined as a belief in one's own abilities to perform an action or activity necessary to achieve a goal or task (Bandura, 1997). In real meaning, self-efficacy is the confidence that individual has in his/her ability to do the things that he/she strives to do. Thus pre-service teachers' confidence refers both to the teachers' perceived likelihood of success on using ICT for educational purposes and on how far the teacher perceives success as being under his or her control (Peralta and Costa, 2007). Teachers' computer self-efficacy is described as a judgment of their capability to use a computer (Compeau & Higgins, 1995). According to Liaw, Huang, and Chen (2007), pre-service teachers' computer self-efficacy influences their use of ICT in teaching and learning. Similarly, (Yuen and Ma, 2008) revealed

that the Hong Kong teachers' implementation of ICT was depended on the simplicity of computer use and perceived teacher self-efficacy.

Christensen and Knezek (2006) described computer self-efficacy as computer confidence in competence. He also revealed that teachers' competence with computer technology is a key factor of effective use of ICT in teaching. Peralta and Costa (2007) conducted a study on 20 teachers' competences and confidence regarding the use of ICT in classrooms. They revealed that in Italy, teachers' technical competence with technology is a factor of improving higher confidence in the use of ICT. In addition, teachers in Greece reported pedagogical and personal factors as those which mostly contribute to their confidence in ICT use. Also, innovative teachers in Portugal linked the perception of confidence in using ICT with the loss of fear of damaging the computer and at the same possessing absolute control over the computer. However, they reported plenty of available time to work and practice ICT, support of experienced teachers and training as favorable conditions for gaining confidence in ICT usage. The conventional teachers also reported organizational factors as a facilitating condition towards gaining confidence and finally new teachers stated that their confidence level in using ICT depended on personal factors.

Jones (2004) said that teachers feel reluctant to use a computer if they lack confidence. "Fear of failure" and "lack of ICT knowledge" (Balanskat et al., 2007) have been cited as some of the reasons for teachers' lack of confidence for adopting and integrating ICT into their teaching. Similarly, in a survey conducted by (Becta, 2004), approximately 21% of the teachers who were surveyed, reported that lack of confidence influences their use of computers in their classrooms. Becta, (2004, p.7) stated that "many teachers who do not consider themselves to be well skilled in using ICT feel anxious about using it in front of a class of children who perhaps know more than they do". Becker (1999) and Gobbo and Girardi (2001) stated that there is a positive

relationship between computer technology skills and teachers‟ attitudes. Skills can significantly influence the ways in which a teacher includes technology tools in the classroom. In an examination of teaching styles and technology integration in Italy, results showed that both personal theories of teaching and the level of skills with technology play a major role in how teachers implement technology and in their perception of their own and their pupils‟ motivation (Gobbo & Girardi, 2001). A study carried out by Veen (1993) that described the daily pedagogical practices of four teachers in the midst of implementing Information and Communication Technology (ICT) in their classrooms in Dutch, found that the most important factor effecting teachers‟ use of ICT was teachers‟ attitudes regarding what should be taught and the way it should be taught. Computer-related technical skills were found to be less important than skills related to the teachers‟ competence in managing activities and communicating lessons.

Teachers must be given the opportunity to become acquainted with newly introduced technologies. Mcalister (2005), in their study of teachers‟ use of computers to teach mathematics, found that overall attitudes towards using computers were very positive, although many of them had limited skills with computers. Mcalister (2005) stated that more training and support in information technology should be given to teachers and more value should be placed on the teacher as a role model for students. Lack of in-service training and insufficient technological infrastructures were the factors that have a significant influence on the effective use of technology by teachers (Gulbahar, 2008).

2.7. Influence of age on pre-service teachers' attitude towards web-quest

Tishman (1995), futurist and technology specialist, explains why technology requires more teacher-student interaction than ever before, "Teachers need to show their students how to judge

and evaluate the information they find". This is the reason for a learning strategy and activity that can help inculcate such skill and abilities in learners. Bruner, (1973) said "It is not enough to merely gather information. If the individual is to understand it and learn from it, there is an essential, interpretive task." The need for inquiry-based learning and constructivist activities in the 21st century School cannot, therefore, be over-emphasized.

Expatiating on the importance of web-quest, Kamat and Shinde (2009) say Web-Quest as an aspect of interactive multi-media inculcates in the learners' skill and ability that helps them to work with information better in an information-driven age. It also equips them with the skills needed to function maximally and efficiently in the real world. Furthermore, Web-Quest activity is designed to promote student's ability to inquire and collaborate, as well as increase students' interest in learning, while participating in an Internet-based unit. According to Muller, Elkund and Shaman (2006) combination of multi-media and inquiry and discovery approach that engages students' interest raise their critical abilities, focus their learning by providing subject matter of sufficient importance to help them build new mental patterns while discarding some old assumptions. Johnson and Johnson (1999) also argued against the lecture method, in a collaborated research study titled "Computer-mediated collaborative learning, an empirical evaluation" two cited the failure of lecture method to actively engage students. It was argued that lecture method relegates students to the role of passive spectators. Hence the two advocates for the use of technology-enhanced instruction. There is little or no argument on whether learners think technology aids their learning, but the problem is if the learners know whether technology is good for them or not. In Nigeria, the need to effectively enhance the learning process and to ensure efficiency is urgent in the classroom teaching. Their argument is strongly in favor of using technology to facilitate instruction and augment the teacher's effort. Hammond and Berry

(2000) are of the opinion that, the current emphasis is ensuring that technology is used effectively to create new opportunities for learning and to promote students' achievements. Therefore, this study sets out to investigate the pre-service teachers' attitude to and the perceived benefits of using Web-Quests to aid their learning, skill acquisition, and the influence of gender, difference of age on the pre-service teachers' attitude and perceived benefits of using Web-Quest for teaching at the university level.

Web-Quests are often cooperative in nature (Bayerbatch & Burrel, 2001), requiring students to take on roles where they are part of a team that must accomplish the task (Dell, 2006). It is also useful in promoting higher-level thinking and to reduce truancy. (Carrol, Legg & Taylor, 2003). The Web-Quest used in this study consisted six sections: an introduction to tasks; process; resources; evaluation and conclusion and it was designed locally using the skills and knowledge-based gained from SITE/AACE conferences and workshops. Based on the above the following objectives will have addressed. This study discussed how the Department of Teacher Education, University of Ibadan utilized Web-Quest as a motivating and creative tool to teach a compulsory and large pre-service teachers' Course (TEE 304) The study also investigated the attitude and perception of pre-service teachers to the use of Web-Quest. The results showed that the sample perceived Web-Quest as a useful creative, motivating pedagogical tool for learning. Student

2.8. Empirical Studies

The followings studies were reviewed based on the variables of the studies

2.8.1 Empirical Studies on Gender Influence

Halat (2014) in his study on gender and web-quest on the pre-service teachers' attitude. The purpose of this study was to investigate whether gender was a factor with regard to the

motivational level of pre-service teachers who design Web-Quest based applications in an instructional technologies and material design course. There were a total of 68 pre-service teachers, 29 males, and 39 females, involved in this study. The researchers used a Likert-type questionnaire including of 34 negative and positive statements. This questionnaire designed to evaluate a situational measure of one's' motivation was used as Pre-and-Posttests in the study that took place in 7 weeks. It was administered to the participants by the researchers before and after the instruction during a single class period. In the analysis of the quantitative data, the independent-samples t-test, the paired-samples t-test and ANCOVA with □ = .05 were employed. The study reported that there was no statistically significant difference found in regard to a motivational level between male and female pre-service teachers who designed Web-Quest- based applications.

Erdamar (2016), in his study on the effect of gender on attitudes of pre-service teachers towards the teaching profession. The aim of this study is to investigate the effects of gender on attitudes of pre-service teachers towards the teaching profession in Turkey. It combines the findings of 35 relevant studies comprising a sample of 4,289 males and 6,073 female pre-service teachers. A Group Difference model was used to identify fixed and random effects and to facilitate comparison using meta-analysis methods. A significant effect size (d=0.271) on an insignificant level was identified in favor of the gender attitudes of female pre-service teachers. The location of the research, branch, and class level/educational status were also found to have moderating effects on attitudes.

Awada and Ghaith, (2014), in his study the impact of web-quest and gender on writing achievement in professional business English. This article reports the results of an experimental study that examined the relative effectiveness of the Web-Quest (WQ) technological model in

improving the English for Occupational Purposes (EOP) writing proficiency of a cohort of English as a foreign language (EFL) learners who were enrolled in a certified university professional business program in Lebanon. The study looked into the question of whether Web-Quest is perceived as a significant and efficacious teaching tool. The study is based on the assumptions that language instructors can use the WQ as a useful source of authentic materials that enrich the content and exercises of the regular English for Specific Purposes (ESP) textbooks. The study employed an experimental pretest-posttest control group design. Descriptive statistics were calculated on performance scores of learners in the control and experimental groups, and by gender, following which a Multivariate Analysis of Covariance (MANCOVA) test was conducted in order to address the questions raised in the study regarding the effect of the treatment conditions, gender, and the interaction between treatment and gender. The results of the study showed no WQI significant treatment effects and no significant interaction effects of treatment and gender on writing achievement. It was also found that females outperformed males.

2.8.2. Empirical Studies on Web-quest Self-Efficacy Influence

In a study conducted by Aniebonam, M.C (2014), base on pre-service teachers' attitude towards computer skills: A Singapore survey. The aim of this study is to examine the attitudes towards the use of computers among pre-service teachers. A sample of 139 pre-service teachers was assessed for their computer attitudes using a Likert type questionnaire with four factors: affect (liking), perceived usefulness perceived control, and behavioral intention to use the computer. The results of this study showed no gender or age differences among pre-service teachers on computer attitudes. However, there were significant differences in computer attitudes by the subject areas that pre-service teachers had been trained during their university education:

Humanities, Sciences, Languages, and General (Primary). Correlation analyses revealed significant associations between years of computer use and level of confidence and computer attitudes. Implications for teacher training and suggestions for further research are provided

Abbitt and Klett (2004), in his pilot study, investigated the influences on self-efficacy beliefs toward web-quest integration among pre-service teachers at two mid-sized public institutions in the Midwest region of the United States. Using pre/post measurements of perceived comfort with using computer technology, perceived usefulness of computer technology, and ratings of self-efficacy beliefs toward web-quest technology integration, this study identified possible influences on self-efficacy beliefs. Specifically, this study found that Perceived comfort with computer technology was found to be a significant predictor of self-efficacy beliefs towards web-quest technology integration, while perceived usefulness was not found to have a significant predictive relationship. This study also found that all of the two groups male and female demonstrated a significant increase in self-efficacy beliefs while enrolled in a course focusing on web-quest technology integration even though the courses varied in course design and weekly instructional time. The results suggest that a course design that focused more broadly on issues relating to the integration of web-quest technology into teaching was likely to have a larger positive impact on self-efficacy beliefs than a course focused primarily on developing proficiency skills with specific computer technology.

Similarly, Onasanya, Shehu, and Oduwaiye (2010) studied and found that the level of competences and skill acquisition of colleges of education and polytechnics students in the use of ICT facilities and equipment is worrisome in Nigeria. Hogarty and Kramer (2000) found that academic qualifications of teachers do not affect their' attitudes towards the use of ICT facilities and equipment. It is surprising that the younger teachers are more amiable to new challenges

than the old ones. However, recent studies in Nigeria indicated that much work has not been down in the aspect of Internet utilization and research productivity. This could be attributed to the fact that information technology is yet to takes its stand in developing countries.

2.8.3 Empirical Studies on Age Influence

Sofowora (2013), in his study on pre-service teachers' attitude and web-quest influence on age and gender using a survey research and population of 1200 pre-service of University of Ibadan find out that teachers perceived Web-Quest as interesting and highly beneficial to their learning. Gender was also a factor in the utilization of Web-Quest. Furthermore, students' age and gender had a positive influence on their attitude to Web-Quest. The student teachers saw Web-Quest as an Inquiry-based pedagogical tool and learning strategy that enhanced team spirit, high-level thinking, collaboration and that it saved costs and time.

Halat (2014) in his study on age and web-quest on the pre-service teachers' attitude. The purpose of this study was to investigate whether age was a great factor with regard to the motivational level of pre-service teachers who design Web-Quest based applications in an instructional technologies and material design course. There were a total of 68 pre-service teachers, 29, 16-20 age and 39 21-above and pre-service teachers involved in this study. The researchers used a Likert-type questionnaire including of 34 negative and positive statements. This questionnaire designed to evaluate a situational measure of one's' motivation was used as Pre-and-Posttests in the study that took place in 7 weeks. It was administered to the participants by the researchers before and after the instruction during a single class period. In the analysis of the quantitative data, the independent-samples t-test, the paired-samples t-test and ANCOVA with □ = .05 were employed. The study reported that there was no statistically significant

difference found in regard to a motivational level between lower age and higher age pre-service teachers who designed Web-Quest- based applications.

Erdamar (2016), in his study on the effect of age on attitudes of pre-service teachers towards the teaching profession. The aim of this study is to define the effects of age on attitudes of pre-service teachers towards the teaching profession in Turkey. It combines the findings of 35 relevant studies comprising a sample of 4,289 males and 6,073 female pre-service teachers. A Group Difference model was used to identify fixed and random effects and to facilitate comparison using meta-analysis methods. A significant effect size (d=0.271) on an insignificant level was identified in favor of the gender and age attitudes of female pre-service teachers. The location of the research, branch, and class level/educational status were also found to have moderating effects on attitudes.

2.9 Summary

In this chapter, issues like attitude, web-quest influence on gender and age, the influence of computer skills on web-quest were discussed. Most of the empirical studies reviewed share the conviction that the attitude of pre-service teachers toward web-quest could be of help to pre-service teachers.

Most of the empirical studies reviewed share the conviction that students do not possess adequate knowledge on the conscious use of web-quest instruction and that no innovation can be adopted without its awareness (dodge 2003). Batlegang, (2012) majority of pre-service teachers in Botswana had limited or no knowledge of using web-quest in learning activities. Seitz (2011) discovered students' attitudes toward web-quest and their intention to adopt it to be significantly influenced by their awareness. Therefore, by virtue of the relevance of web-quest instruction,

educational technology stakeholders as the highest computer users, it becomes necessary for them to adopt web-quest instruction into the educational system.

Attitude begins with influence. Therefore, by virtue of the relevance of web-quest becomes necessary to make ICT resources available in colleges of education to enhance effective instructional processes. From the review of the literature, it is clear that several studies found that web-quest technology resources are not available and accessible by pre-service teachers in colleges of education in Nigeria. Studies have also shown that teachers and students are not well exposed and proficient in the use of web-quest technology in teaching-learning activities. However, very few of the literature reviewed sought to find out lecturers and students attitude on web-quest utilization in Colleges of Educations. This study is designed to fill this gap in the literature so as to provide useful information in such area.

CHAPTER TREE

METHODOLOGY

3.1 Introduction

This chapter describes the method, procedure, and technique to be used during the research under the following sub-headings; Research design, population of the study, sample and sampling technique, an instrument for data collection, the validity of the instrument, pilot study, the procedure for data collection, and method of data analysis.

3.2 Research Design

This study adopted descriptive survey research design. A survey is used in studies that have individuals as units of analysis (Babbie, 2001). This is also what Nworgu (1991) described as allowing a group of people or items to be studied by collecting and analyzing data from only a few people or items to be considered as representative of the entire group. It allows the researcher to gather information about a target population without undertaking a complete enumeration. It is a research method that is good for both small and large population and it is a common research method in social science (Hale, 2011).

The choice of this design was to allow the researcher to gain an insight of pre-service teachers' attitude towards web-quest instruction in colleges of education Katsina State.

3.3 Population of the Study

The target population of this study comprises of all pre-service teachers (students) of the Colleges of education Katsina state, Nigeria, which are, Federal College of Education Katsina, and Isa Kaita College of Education Dutsin-ma. The Federal College of Education Katsina has a total number of (3350) pre-service teachers, while Isa Kaita College of Education has a total

number of (3490) pre-service teachers. The total population of this study, therefore, is (6840) pre-service teachers (student). Their Distribution is presented in Table 3.1 as follows:

Table 3.1: Distribution of Population in Colleges of Education in Katsina state Nigeria.

Name of Colleges	Number of students
1. Federal College of Education Katsina State.	3350
2. Isa Kaita College of Education Dutsin-ma Katsina State	3490
Total	6840

Source: Planning research and statistics (PRS) Federal collage of education Katsina and Isa Kaita College of Education Dutsin-ma

3.4 Sample and Sampling Technique

The sample size of this study consists of pre-service teachers in colleges of Education Katsina state. The sample size estimation was based on the recommendation by (Krejcie and Morgan 1970) table of sample size.

Stratified is used in sampling the pre-service teaches, therefore every pre-service teacher is assumed to have an equal right and chance to be selected. Out of a total number of 6840 pre-service teachers in the Colleges of Education Katsina state, only 364 pre-service teachers were selected to make the sample as recommended by Krejcie and Morgan table of sample size.

The Colleges of Education used during this study and the number of sample per institution is indicated in Table 3.2 below:

Table 3.2: Distribution of Sample from the Population of Colleges of Education in Katsina state, Nigeria.

S/N	Name of Colleges	Sample Frame	Sample Size
1	Federal College of Education Katsina State.	3350	182
2	Isa Kaita College of Education Dutsin-ma Katsina State	3490	182
	Total	6840	364

3.5 Instrumentation

Two research instruments were used to collect data for the purpose of this study. They were constructed questionnaire termed: Students' Attitude and Self-efficacy Towards Web-quest instruction and a Web-Quest Application Package designed by the researcher on geography concept Covering on three topics: rocks, transportation, and settlements. The pre-service teachers used the web-quest package for one week before giving them the questionnaire to answer.

The questionnaire was designed under three different sections and harmonized in one single questionnaire; Section A required the respondents' demographic information that includes: Sex and age of the respondents, while Section B has 20 items and C contains 11 items on "Attitude of pre-service teachers toward utilization of web-quest instruction for learning geography concept and the influence of self-efficacy on pre-service teachers' toward web-quest instruction in Colleges of Education Katsina, Katsina state. It was also designed on a five-point Likert scale type in which the respondents will choose from the options provided. The Respondents were required to respond to the items by a tick (√) against the appropriate option that reflects or show their personal opinion as seen in Appendix I.

3.6 Validity of the Instrument

The face and content validity of the instrument were ascertained by giving the questionnaire to three lecturers from the tree Department these are Department of Educational Foundation and Curriculum, Psychology Department, and English language Department. The judgment and assessment of the specialist helped to determine the extent to which the items of the questionnaire accurately cover the area of the study domain. As Nworgu (1991) states that validating an instrument requires the services of a panel of experts who ensure that the items correspond with the purpose of the study, research questions as well as hypotheses if any to be tested. This was to determine by the experts on whom items can actually elicit the information from the questionnaire intends to elicit in order to answer the research questions of the study.

3.7 Pilot Testing

Thirty-five copies of the questionnaires were pilot tested in Usufu Bala Usman College of legal and advanced studies Daura, Katsina state to ascertain the reliability of the instrument. In the process of pilot testing, some problems were encountered and noticeable among was that some words used are vague. This was overcome by replacing those words based on the respondents' level of understanding. It was also discovered that in some section of the instrument, rating items do not meet the international benchmark hence, was increased to meet the standard format. The data collected were analyzed with the Statistical Package for Social Science.

3.8 Reliability of the Instrument

The Cronbach's Alpha Reliability Coefficient was used to obtain the reliability coefficient of the instrument. The reliability co-efficient of 0.92 for section B and 0.88 for section C was obtained. This is also what Fulekar, (2009) says that an instrument is said to be reliable when the

reliability coefficient can be approximated to one (1). Thus, this instrument can be said to be satisfactory for use in the study. The choice of this statistical method was informed by its advantage of not multiple administrations of instruments. The method did not require the splitting of items into two halves and sub-scores to obtain a reliability Coefficient.

3.9 Procedure for Data Collection

The researcher obtained an introductory letter from the Department of Educational Foundations and Curriculum, Ahmadu Bello University Zaria, which is used to facilitate the ease of the administration of the questionnaires in the respective colleges. Upon obtaining colleges consent, the researcher solicits the help of research assistants. After the initial introduction and briefing in respect of the purpose and nature of the research questionnaires, the research assistants were required to administer it to the participants as well as ascertain that they were duly returned by the respondents.

3.10 Procedure for Data Analysis

In view of the data generated from the research questionnaires, a number of statistical techniques were used for the analysis. Frequency counts and the percentage was used to explain the demographic data of the study. Data collected on the basis of the research questions set in chapter one were analyzed using descriptive statistics (i.e mean and standard deviation). The limit for decision rule: An average mean of 2.50 and above was considered as agreed, while an average mean of 2.49 and below was considered disagreed with respect to research questions.

Null hypotheses one, and three was tested using Mann Whitney test and null hypotheses two, and four were tested using Kruskal-Wallis test at 0.05 (95%) level of significant.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents the results of the data obtained from the study. The analyses of the data were based on the null hypotheses advanced in chapter one. The results obtained from the data collected for this study are presented in the Tables.

4.2 Demographic Data of the Respondents

Table 4.1: Frequency and Percentage Distribution of the Respondents by Gender

Gender	Frequency	Percentage
Male	208	58.50
Female	150	41.50
Total	358	100%

The data in table 4.1 shows that out of 358 respondents, 208 (58.50%) are male while 150 (41.50%) are female. This means that the male pre-service teachers form the majority of the respondents that took part in the study.

Table 4.2: Frequency and Percentage Distribution of the Respondents by Age

Respondents Age		Frequency	Percentage
Low	(16-20)	157	43.50%
Medium	(21-25)	191	53.50%
High	(26-above)	10	3.00%
Total		358	100%

The data in table 4.2 shows that out of 358 respondents, 157 (43.50%) are of lower age 191 (53.50%) are of medium age while 10 (3.00%) is the oldest in age. This means that the pre-service teachers with middle age form the majority of the respondents that took part in the study.

4.3: Research Questions

Research Question One: What are the attitudes of pre-service teachers towards the use of web-quest instruction for learning geography concepts?

To answer this question, respondents were asked to rate themselves on the items provided on the attitude towards the use of web-quest instruction for learning geography concept. Items 1–20 of the research instrument were used to answer this question. The result is presented in table 4.3 as follows.

Table 4.3: Pre-service teachers' attitude towards the use of web-quest instruction for learning geography concepts.

S/N	Rating Items	Mean	SD	Decision
1	The use of web-quest improves my learning	3.54	0.50	Agreed
2	Web-quest instruction ensures accuracy in lesson presentation.	3.38	0.67	Agreed
3	Web-quest ensures time management in learning Geography concept.	3.22	0.81	Agreed
4	Web-quest Instruction as a tool promotes instructional delivery.	2.30	0.78	Disagreed
5	I enjoy learning with web-quest	3.11	0.80	Agreed
6	Web-quest helps to use the computer more effectively than before.	3.25	0.83	Agreed
7	I prefer web-quest for learning than conventional method	3.23	1.06	Agreed
8	Web-quest enables me to cover more concept within a short period	2.12	0.75	Disagreed
9	Web-quest enables me to learn at my own pace	3.33	0.79	Agreed

10	Web-quest enables me to navigate from one topic to another	3.35	0.81	Agreed
11	I think that introducing web-quest instruction in teaching and learning would be useful in my school	3.34	0.81	Agreed
12	Web-quest serves as promoter of conducive teaching and learning environment	3.37	0.75	Agreed
13	Web-quest software is supplied for instructional purposes in your institution	3.14	0.95	Agreed
14	Web-quest instruction is used for instructional purposes in your institution	3.15	0.96	Agreed
15	Using web-quest instruction makes it easier for me to remember what I learn in the classroom	2.10	0.86	Disagreed
16	Web-quest make courses more enjoyable	3.28	0.79	Agreed
17	Web-quest can be used with various instructional method and techniques	3.31	0.91	Agreed
18	Effective utilization of web-quest encourages integrative learning that promotes thematic and reduces traditional classroom	3.04	1.00	Agreed
19	Because of using web-quest, I feel more prepared for instruction	3.30	0.83	Agreed
20	Effective utilization of web-quest facilitates discussions on the content in classroom presentation	3.11	0.96	Agreed
	Cumulative mean	**3.09**		

Decision mean= 2.5

Table 4.3 shows the pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept. It was discovered that pre-service teachers' are in agreement with the 17 items, only 3 were not in agreement base on the pre-service teachers' attitude toward the use of web-quest instruction. The cumulative mean of 3.09 in all the 20 items is higher than the decision mean of 2.50. Specifically, item1which state that "the use of web-quest instruction improves my learning" attracted the highest mean value of 3.54. While item 15 which state that

"using web-quest instruction makes it easier for me to remember what I learn in the classroom" attracted the lowest mean value of 2.10.

Research Question Two: What is the pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept?

To answer this question, respondents were asked to rate themselves on the items provided on the self-efficacy towards the use of web-quest instruction for learning geography concept. Items 21– 31 of the research instrument were used to answer this question. The result is presented in table 4.4 as follows:

Table 4.4: Pre-service teachers' self-efficacy on the use of web-quest for learning geography concepts.

S/N	Rating Items	Mean	SD	Decision
21	you have the skills of using web-quest for your learning	2.05	1.29	Disagreed
22	you have the skills of using web-quest for motivating your learning	2.89	1.36	Agreed
23	You have the skills to manipulate the use of web-quest for your learning	2.87	1.36	Agreed
24	You learn faster when your lecturer use web-quest instruction application skills to teach	2.49	1.58	Agreed
25	You have the skills of using web-quest for gathering learning information.	2.87	1.47	Agreed
26	You have the skills of using web-quest application for conducting research.	2.10	1.41	Disagreed
27	Using web-quest instruction makes it easier for me to remember what I learned in a classroom presentation.	2.93	1.13	Agreed
28	I have the skills of using web-quest for marking instruction/presentation more interested.	2.78	1.39	Agreed
29	I notice my computer skills are improving day by day when using web-quest instruction.	2.88	1.45	Agreed
30	My institution has the policy to promote or support computer-based innovations by teacher trainers in their learning.	2.91	1.27	Agreed
31	We need to be attaining workshops or other learning activities about pedagogical use of computer provided to teacher trainers	3.24	1.27	Agreed
	Cumulative mean	**2.72**		

Decision means 2.5

Table 4.4 reviled pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept. It was observed that pre-service teachers are in agreement with the 9 items while 2 were not in agreement base on self-efficacy toward the use of web-quest

instruction. The cumulative mean of 2.72 of the 11 items is higher than the decision mean of 2.50. Specifically, item 21 which state that "we need to be attaining workshops or other learning activities about the pedagogical use of computer provided to teacher trainers" attracted the highest mean value of 3.24. While item 16 which state that "I have the skills of using web-quest application for conducting research" attracted the lowest mean value of 2.10.

Research Question Three: What is the difference between male and female pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept?

In response to research question three, the responses on item number 1– 20 of the research instrument was computed to determine the mean and standard deviation of male and female pre-service teachers' attitude toward web-quest instruction for learning geography concept. The result is presented in table 4.5 as follows:

Table 4.5: Male and female pre-service teachers' attitude towards the use of web-quest for learning geography concepts.

Gender	N	Mean	Std. Deviation
Male	208	3.23	0.376
Female	150	3.35	0.027

Table 4.5 shows the mean and standard deviation between male and female Pre-service teachers attitude towards the use of web-quest instruction for learning geography concept. Female pre-service teachers had a greater mean value of 3.35 and a standard deviation of 0.027 compared to male pre-service teachers with 3.23 mean values and a standard deviation of 0.376.

Research Question Four: What is the influence of age on pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept?

In response to research question four, the responses on item number 1– 20 of the research instrument was computed to determine the mean and standard deviation of pre-service teachers'

attitude toward web-quest instruction for learning geography concept base on age differences. The result is presented in table 4.6 as follows:

Table 4.6: Influence of age on pre-service teachers' attitude towards the use of web-quest for learning geography concepts.

Age		N	Mean	Std. Deviation
Low	(16-20)	157	3.27	0.385
Medium	(21-25)	191	3.28	0.348
High	(26-above)	10	3.30	0.296

The result from table 4.6 revealed the attitude of pre-service teachers mean and standard deviation between the three age groups (high, medium, and low) towards the use of web-quest instruction for learning geography concept. Pre-service teachers within the 26 and above age bracket (High) recorded the highest mean value of 3.30 and standard deviation 0.296, followed by pre-service teachers within 21-25 (Medium) with 3.28 mean value and standard deviation of 0.348, thus slightly ahead pre-service teachers within 16-20 age bracket (Low) with mean value of 3.27 and a standard deviation of 0.385 being recorded with the lowest mean value.

Research Question Five: What is the difference between male and female pre-service teachers' self-efficacy on the use of web-quest instruction for learning geography concept?

In response to research question five, the responses on item number 21– 31 of the research instrument was computed to determine the mean and standard deviation of male and female pre-service teachers' self-efficacy toward web-quest instruction for learning geography concept. The result is presented in table 4.7 as follows:

Table 4.7: Pre-service teachers' self-efficacy on the use of web-quest for learning geography concepts base on gender.

Gender	N	Mean	Std. Deviation
Male	208	2.80	0.926
Female	150	3.06	0.756

Table 4.7 shows the difference between the male and female Pre-service teachers self-efficacy toward the use of web-quest instruction for learning geography concept. The mean value for male pre-service teachers was 2.80 and standard deviation of 0.926, while female pre-service teachers have the mean value of 3.06 and standard deviation of 0.759. Therefore, female pre-service teachers recorded the higher mean value from the Table.

Research Question Six: What is the influence of age on pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept?

In response to research question six, the responses on item number 21– 31 of the research instrument was computed to determine the mean and standard deviation of pre-service teachers' self-efficacy toward web-quest instruction for learning geography concept base on the age difference. The result is presented in table 4.8 as follows:

Table 4.8: Influence of age on pre-service teachers' self-efficacy on the use of web-quest for learning geography concepts

Age		N	Mean	Std. Deviation
Low	(16-20)	157	2.94	0.851
Medium	(21-25)	191	2.89	0.894
High	(26-above)	10	2.88	0.586

Table 4.8 revealed the pre-service teachers mean difference and standard deviation between the three age groups (high, medium, and low) towards the use of web-quest instruction for learning geography concept base on self-efficacy. Pre-service teachers within the low class (16-20) age bracket recorded the highest mean value of 2.94 and standard deviation 0.851, followed by pre-service teachers within the medium age of 21-25 years have 2.89 mean value and standard deviation of 0.894, thus slightly ahead pre-service teachers within the high class 26 years and above age bracket with mean value of 2.88 and standard deviation of 0.586 being recorded with the lowest mean value.

4.4: Data Analysis and Results Presentation

Testing of Null Hypotheses

Null Hypothesis One: there is no significance difference between male and female pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept.

To test this hypothesis, Mann-Whitney test is used to test the difference between male and female pre-service attitude towards the use of web-quest instruction for learning geography concept to present the result in table 4.8 as follows:

Table 4.8: Mann-Whitney Test of male and female pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept.

Ranks

Test Variable	N	df	Mean Rank	Sum of Ranks	U(1)	p-value
Male	208	1	167.72	34719.00	1.319	0.015
Female	150		194.56	29184.00		
Total	358					

Table 4.8: The result of the Mann-Whitney test showed the male and female pre-service teachers' opinions on the attitude toward the use of web-quest instruction for learning geography concept in the college of education Katsina State. The result showed that significant differences exist between male and female pre-service teachers' attitude towards the use of web-quest

instruction for learning geography concept. This is because the p-value of 0.015 is lesser than 0.05 alpha value of significance. Therefore, the null hypothesis is thereby rejected.

Null Hypothesis Two: there is no significance difference in the pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept based on the age difference.

To test this hypothesis, Kruskal-Wallis test was used to test the pre-service attitude towards the use of web-quest instruction for learning geography concept base on the age difference. To present the result in table 4.9 as follows:

Table 4.9: Kruskal-Wallis test of the mean rating of pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept base on age difference (low, medium and high)

Ranks

Test Variable	Age range	N	df	Mean Rank	X2(2)	P-value
Attitude of pre-Service teachers toward web-quest	Low	157	2	176.54	.244	0.885
	Medium	191		181.62		
	High	10		185.60		
	Total	**358**				

Table 4.9: Shows the result of the Kruskal-Wallis test with the mean rankings of three age groups of the respondents (low age, medium age, and high age) in their opinions on the attitude towards the use of web-quest instruction for learning geography concept base on the age difference. The result indicates that there is no significant difference in their mean rankings. This is because the p-value of 0.885 is greater than the 0.05 alpha value of significance. Their mean ranking based on age difference is 176.54, 181.62, and 185.60 for the low, medium and high level of age respectively. This shows that irrespective of respondents' age their mean ratings on attitude base on age difference is not significantly different. Therefore, the null hypothesis which states that there is no significant difference in the pre-service teachers' attitude toward the use of

web-quest instruction for learning geography concept base on age difference is hereby not rejected.

Null Hypothesis Tree: there is no significance difference between male and female pre-service teachers' self-efficacy on the use of web-quest instruction for learning geography concept.

To test this hypothesis, Mann-Whitney Test is used to test the difference between male and female pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept as presented in Table 4.10.

Table 4.10: Mann-Whitney Test of the difference between male and female pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept.

Test Variable	N	df	Mean Rank	Sum of Ranks	U(1)	P-value
Male	208	1	167.31	34632.50	1.310	0.012
Female	150		195.14	29270.50		
Total	358					

Table 4.10: The result of Mann-Whitney test showed the male and female pre-service teachers' opinions on the self-efficacy toward the use of web-quest instruction for learning geography concept in Colleges of Education Katsina, Katsina state. The result revealed that significant differences exist between both groups of students in their opinions on the difference between male and female pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept. This is because the p-value of 0.012 is lesser than the 0.05 alpha value of significance. Therefore, the null hypothesis is thereby rejected.

Null Hypothesis Four: there is no significance difference in the pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept based on the age difference.

To test this hypothesis, Kruskal-Wallis test is used to test the pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept based on age difference as presented in Table 4.10.

Table 4.11: Kruskal-Wallis test of mean rating of pre-service teachers' self-efficacy towards the use of web-quest instruction for learning geography concept base on age difference (low, medium and high)

Test Variable	Age range	N	df	Mean Rank	X2(2)	p-value
Pre-service teachers' self-efficacy towards the use of web-quest.	Low	157	2	183.16	0.736	0.692
	Medium	191		177.68		
	High	10		156.90		
	Total	**358**				

Table 4.10 Shows the result of Kruskal-Wallis test with the mean rankings among the three group of age range (low age, medium age, and high age) in their opinions on the self-efficacy towards the use of web-quest instruction for learning geography concept base on the age difference. The result indicates that there is no significant difference in their mean rankings. This is because the p-value of 0.692 is greater than the 0.05 alpha value of significance. The mean rating of pre-service teachers' self-efficacy base on the age difference is 183.16, 177.68, and 156.90 for the low, medium and high level of age respectively. This shows that irrespective of respondents' age their mean ratings on attitude base on age are not significant differences. Therefore, the null hypothesis which states that there is no significant difference in the pre-service teachers' self-efficacy toward the use of web-quest instruction for learning geography concept base on age difference is hereby not rejected.

4.3 Summary of the Findings.

The following are the summary of the major findings of the study:

1. Pre-service teachers indicate a positive attitude toward the use of web-quest instruction for learning geography concept.

2. Pre-service teachers indicate their self-efficacy toward the use of web-quest instruction for learning geography concept.
3. Female pre-service teachers indicate the higher attitude of using web-quest instruction for learning geography concept in Colleges of Education Katsina, Katsina state, than their male counterpart.
4. There was no significant difference among pre-service teachers' attitudes towards the use web-quest instruction for learning geography concept in Colleges of Education Katsina, Katsina state based on their age difference.
5. Female pre-service teachers had higher self-efficacy of using web-quest instruction for learning geography concept in Colleges of Education Katsina, Katsina state then their male counterpart.
6. There was no significant difference among pre-service teachers' self-efficacy towards the use web-quest instruction for learning geography concept in Colleges of Education Katsina, Katsina state based on their age difference.

6.5.1 Discussion of Results

The study revealed that pre-service teachers have a positive attitude towards the use of web-quest instructional package for learning geography concept. This is in agreement with Taylor, (2003) finding that the pre-service teachers perceived web-quest as a useful creative, motivating and pedagogical tool for learning.

The results of the study revealed that pre-service teachers showed a positive response on self-efficacy toward the use of web-quest instruction for learning geography concept in Colleges of Education Katsina, Katsina state. This is in agreement with Liaw, Huang, and Chen (2007), which revealed that computer self-efficacy influenced pre-service teachers' use

of web-quest in teaching and learning. Similarly, (Yuen and Ma, 2002) revealed that the Hong Kong teachers' implementation of web-quest instruction was depended on the simplicity of computer use and perceived teacher self-efficacy.

There is a significant difference between male and female pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept in favor of the female. This is in disagreement with (Erdamar 2016) who conducted a study on the effect of gender on attitudes of pre-service teachers towards the use of web-quest instruction and found that female pre-service teachers have a positive attitude towards the use of the web-quest instructional package.

The study also revealed that pre-service teachers' attitude towards the use of web-quest instruction for learning geography concept based on age difference was not significant. The finding is in agreement with Halat (2014) which reported that there was no statistically significant difference found in the motivational level between lower age and higher age pre-service teachers who designed web-quest- based applications.

The study also revealed that female pre-service teachers' have higher self-efficacy towards the use of web-quest instruction for learning geography concept than their male counterpart. This is in agreement with the (Abbitt and Klett 2004) which found male and female pre-service teachers demonstrated a significant increase in self-efficacy beliefs.

The study revealed that there was no significant difference among pre-service teachers irrespective of the age difference. This is in agreement with (Halat and kellet 2014) who reported that there was no significant difference in self-efficacy level between lower ages and higher age pre-service teachers who designed web-quest- based application.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, the summary of the major findings of the study, implications of the findings to education, conclusion and useful recommendations. It also suggests areas for further studies, generalization, and limitations of the study.

5.2 Summary

The main aim of this study was to investigate students' attitude towards web-quest instruction among pre-service teachers in Colleges of Education Katsina, Katsina state. The objectives of this study, research questions, and research hypotheses were drawn based on the major variables outlined in chapter one of this study. This study covered two Colleges of Education in Katsina state. It was specifically targeted on the investigation of pre-service teachers' attitude toward web-quest instruction for learning geography concepts. Most of the review of related literature and empirical studies share the conviction of pre-service teachers' attitude towards using web-quest instruction. The study adopted descriptive survey research design. The population of the study comprises of all the pre-service teachers in Colleges of Education in Katsina state. They are 6,840 pre-service teachers'. A sample size of 364 pre-service teachers was used for the study. The instrument for data collection was a self-constructed questionnaire "pre-service teachers' attitude and self-efficacy towards web-quest instruction for learning geography concept in colleges of education Katsina State". The face and content validity of the instrument were ascertained by giving the questionnaire to two specialists in the field of Educational technology and two from Psychology and English Department. Thirty-five copies of the questionnaires were pilot tested in Usufu Bala Usman College of Legal and

advanced studies Daura to ascertain the reliability of the instrument. The reliability co-efficient of 0.92 and 0.88 was obtained at 0.05 level of significant for section B and C of the questionnaire. The percentages were used to interpret the demographic data of the study. Data collected on the basis of the research questions set in chapter one were analyzed using descriptive statistics (i.e. frequency, mean and standard deviation). The limit for decision rule: An average mean of 2.50 and above was considered as agreed, while an average mean of 2.49 and below was considered disagreed with respect to research questions.

Null hypotheses one, and three were tested using Mann Whitney test and null hypotheses two, and four were tested using Kruskal-Wallis test at 0.05 (95%) level of significant. The reasons for choosing this statistical technique was based on the nature of the data that was collected which is purely respondents' opinion.

5.3 Conclusion

The findings of the study revealed that the pre-service teachers' attitude and self-efficacy toward web-quest instruction in colleges of education Katsina State are low. This phenomenon will definitely affect the quality of pre-service teachers from these institutions. In spite of the awareness of the place of web-quest application in instructional delivery, it is yet to record the same impression among lecturers and pre-service teachers in Colleges of Education Katsina State.

5.4 Recommendations

Based on the findings of this study, the researcher makes the following recommendations:

1. Pre-service teachers should be exposed to new technologies that can improve their attitude for learning geography concepts. This could be achieved if Government, National

Commission for Colleges of Education (NCCE) and other Education stakeholders to respond positively and provide enough ICT infrastructures in all the Colleges of Education across the country so as to encourage pre-service teachers to utilize them in their learning.

2. Government and non-governmental organization should provide adequate training and workshop on the use of web-based teaching and learning technique to promote effective teaching and learning in the tertiary institution.
3. The government, National Commission for Colleges of Education and the managements of Colleges of Education should join hands together and ensure that both male and female pre-service teachers are given equal opportunity to use computer laboratories and also should ensure that adequate functional computer hardware and software are provided in the institutions.
4. The government should provide adequate infrastructure and enabling an environment that will promote teaching and learn with innovative technologies.
5. The NCCE should introduce and implement oriented policies that will support web-quest related teaching methods. This will encourage both students and lecturers to use web-quest in their teaching/learning activities.
6. Emphasis should be given to the pedagogy behind the utilization of web-quest instruction for teaching/learning activities in colleges of education.
7. The government should increase funding for the educational sector with emphasis on ICT that will help improve the level and the use of ICT innovation in teaching and learning in colleges of education.

5.5 Limitation of the Study

A part of time constraint and lack of pre-service teachers' interest before exposing to web-quest package application on geography, the study suffers a minor problem in the course of administration and retrieval of the research instrument. This is due to the fact that; the sample size of the study was 364 but only 358 questionnaires were returned for data analysis which is 98.4% of the sample size. However, these limitations have no any negative effects on the findings of this study.

5.7 Suggestion for Further Study

`The researcher recommends the following suggestions for further research:

1. This study was limited to only two colleges of education in Katsina State, it is recommended that similar study should be carried out in other state or north-central zone of Nigeria.
2. The study only investigates the attitude of pre-service teachers towards the use of web-quest instruction in Colleges of Education Katsina state, further study should be carried out on the effectiveness of web-quest application on the performance of pre-service teachers' in north-central Colleges of Education in Nigeria.

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DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM

AHMADU BELLO UNIVERSITY ZARIA, NIGERIA

QUESTIONNAIRE

Dear Respondent,

I am a postgraduate student (M.Ed. instructional technology) of the above-named institution. I am conducting a research on **"Students Attitude towards Web-Quest Instruction among Pre-service Teachers in Colleges of Education Katsina state".** I would like you to please answer the questions in respect of this study. Your co-operation will be greatly appreciated. All information given will be treated confidentially and for research purpose only.

Section A

1. Gender: (i) male ( ) (ii) female ( )
2. Age: (i) 16-20 ( ) (ii) 21-25 ( ) (iii) 26-above ( )

Section B

What are the attitudes of Pre-service teachers toward utilization of Web-Quest instruction (WQI) for learning geography concept in Colleges of Education in Katsina state?

Please you are required to tick the appropriate column, under the following keys: Strongly Agreed (SA=4), Agreed (A=3), Undecided (U=0), Disagreed (D=2), and Strongly Disagreed (SD=1).

S/N	Ratings Items	SA	A	U	D	SD
1	The use of web-quest improves my learning					
2	Web-quest instruction ensures accuracy in lesson presentation.					
3	Web-quest ensures time management in learning Geography concept.					
4	Web-quest Instruction as a tool promotes instructional delivery.					
5	I enjoy learning with web-quest					

6	Web-quest helps to use the computer more effectively than before.					
7	I prefer web-quest for learning then conventional method					
8	Web-quest enables me to cover more concept within a short period					
9	Web-quest enables me to learn at my own pace					
10	Web-quest enables me to navigate from one topic to another					
11	I think that introducing web-quest instruction in teaching and learning would be useful in my school					
12	Web-quest serves as promoter of conducive teaching and learning environment					
13	Web-quest software is supplied for instructional purposes in your institution					
14	Web-quest instruction is used for instructional purposes in your institution					
15	Using web-quest instruction makes it easier for me to remember what I learn in the classroom					
16	Web-quest make courses more enjoyable					
17	Web-quest can be used with various instructional method and techniques					
18	Effective utilization of web-quest encourages integrative learning that promotes thematic and reduces traditional classroom					
19	Because of using web-quest, I feel myself more prepared for instruction					
20	Effective utilization of web-quest facilitates discussions on the content in classroom presentation					

Section C

Q2. What are the influence of computer self efficacy on pre-service teachers' attitude toward web-quest in Colleges of Education Katsina state, Nigeria?

Please you are required to tick the appropriate column, under the following keys: Strongly Agreed (SA), Agreed (A), Undecided (U), Disagreed (D), and Strongly Disagreed (SD).

S/N	Items	SA	A	U	D	SD
21	you have the skills of using computer for your learning					
22	you have the skills of using computer for motivating your learning					
23	You have the skills to manipulate the computer for your learning					
24	You learn faster when your lecturer use their computer skills to teach					
25	You have the skills of using computer for gathering learning information.					
26	You have the skills of using computer for conducting research.					
27	Using computer makes it easier for me to remember what i learned in classroom presentation.					
28	I have the skills of using computer for marking instruction/presentation more interested.					
29	I notice my computer skills are improving day by day					
30	My institution has a policy to promote or support computer based innovations by teacher trainers in their learning.					
31	We need to be attaining workshops or other learning activities about pedagogical use of computer provided to teacher trainers					