EFFECT OF TECHNOLOGY INTEGRATION ON SECONDARY SCHOOL STUDENTS' LEARNING OUTCOMES IN CIVIC EDUCATION IN ZARIA EDUCATIONAL ZONE OF KADUNA STATE, NIGERIA

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B.ED. SOCIAL STUDIES (ABU-2014)

DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM, FACULTY OF EDUCATION,

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

DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM, FACULTY OF EDUCATION,

AHMADU BELLO UNIVERSITY,

ZARIA, NIGERIA

FEBRUARY, 2020

DECLARATION

I hereby declare that this dissertationtitled “Effect of Technology Integration on Secondary School Students’ Learning Outcomes in Civic Education in Zaria Educational Zone of Kaduna State, Nigeria”was written by me in the Department of Educational Foundations and Curriculum. The information derived from series of literature has been duly acknowledged in the text and in the list of references provided. The study was not previously presented for the award of another degree or diploma in any University.

_____ _____

SORETIRE Kabiru Adisa **Date**
P16EDFC8078

CERTIFICATION

This dissertation titled “Effect of Technology Integration on Secondary School Students’ Learning Outcomes in Civic Education in Zaria Educational Zone of Kaduna State, Nigeria” meets part of the regulation governing the award of Master’s Degree in Instructional Technology of the Department of Educational Foundations and Curriculum, Faculty of Education, Ahmadu Bello University, Zaria;and is approved for its contribution to knowledge and literacy presentation.

_____ _____

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(Dean, School of Post Graduate Studies)

DEDICATION

This work is dedicated to mybeloved Late grandmother; Mrs. Abike Ogunbunmi whom God used tremendously with the help of significant others in building my enduring traits of perseverance, faith in God, dedication, democratic life style, at my childhood socialization process. May her soul rest in perfect peace.

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ABSTRACT

The study investigated the effect of technology integration on secondary school students' learning outcomes in civic education in Zaria educational zone of Kaduna state, Nigeria. The study aimed at determining the effects of integrating non-digital technology of chalkboard, Linear PowerPoint and Interactive PowerPoint in civic education on students' academic performance and attitude toward civic education as a school subject. Two research questions were raised and two corresponding hypotheses were formulated and tested at 0.05 level of significance. The study used quasi-experimental design of pretest-posttest non-equivalent nonrandomized comparison groups design. The population of the study was 56,415 students in 39 senior secondary schools in Zaria Education Zone. 204 SSII students participated in the study using purposive sampling technique. Two instruments were used for data collection: Civic Education Performance Test (CEPT) (adopted from WAEC and NECO from 2014-2017), Civic Education Students Attitudinal Scale (CESAS). CEPT and CESAS were validated. CESAS was pilot tested using Cronbach Alpha Approach and a reliability index of 0.85 was obtained. The data collected were analyzed using descriptive statistics of mean, standard deviation and percentage. Formulated hypothesis 1 was tested using ANCOVA while hypothesis 2 was tested using ANOVA. Findings revealed that there was a significant difference in the mean academic performance scores of SSII students taught civic education using Non-digital technology of Chalkboard, Linear PowerPoint and Interactive PowerPoint in favour of Interactive and Linear PowerPoint groups. The study also revealed a significant difference in the attitudes of students taught civic education using Non-digital technology of chalkboard, Linear PowerPoint and Interactive PowerPoint in favour of Interactive Power Point. The study, therefore, recommended among others that Interactive PowerPoint Instructional packages should be encouraged in schools for teaching civic education.

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LIST OF ABBREVIATIONS

DPT:	Digital Presentation Technology
IDT:	Interactive Digital Technologies
IPP:	Interactive PowerPoint
LPP:	Linear PowerPoint Presentation
NDT:	Non-digital technology
GB-IPP:	Game-Based Interactive PowerPoint
IPP-VI:	Interactive PowerPoint of Virtual Inquiry
CESAS:	Civic Education Students Attitudinal Scales
CEPT:	Civic Education Performance Test
LCD	Liquid Crystal Display
WPS	Wireless Presentation System
.pptx:	PowerPoint Editable file format
.pps:	PowerPoint Show file format

OPERATIONAL DEFINITION OF TERMS

The following are the terms used operationally in this study and their meaning to the present study.

Technology Integration: The use of digital and non-digital technology for enhancing teaching and improving performance in civic education.

Non-digital technology: These are low media such as textbook, chalkboard, printed pictures, still pictures, models, among others that can be used in teaching and learning of civic education.

Linear PowerPoint: This is a format of PowerPoint show whereby the media contents (learning resources on civic education) of the slides precede one after another.

Interactive PowerPoint: This is a format of PowerPoint show whereby media contents (learning resources on civic education) of the slides are hyperlinked to one another which enable flexible navigation and user friendly interaction.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Education remains the most powerful instrument for effecting any desired change in human society. Education system being a sub-system of the super-system (the society) is consciously designed to meet the needs of society, although not always the needs of all within. Citizens refined by the education system are expected to possess competencies and values needed by society. This explains why countries of the world held education industry with high esteem because of its potentialities of producing effective citizens who are educationally sound in head, heart, and hand (3H) (Wangaard, Elias, Fink & 2014).

The fundamental role of producing competent and effective citizens by the education industry is becoming more complex associety has been transformed by digital technologies of the 21st-century. The integration of these technologies in socio-economic and political institutions is gradually making human interactions more of digital technology-dependent (Garba, Byabazaire & Busthami, 2015). It is, therefore, required of the education industry to integrate digital technologies in teaching and learning to equip 21st-century learners with what it takes to fit into the larger society. It is worth to note that most of these digital technologies are not primarily designed for the education industry. The need to create a teaching and learning environment that mirrors the reality of the larger society calls for innovative integration of digital technologies that transformed the analogue society into a digital society (Harris, Mishra & Koehler, 2009). Innovative integration refers to appropriation of digital toolsfor teaching and learning activitiesso that students can use these tools in the same way they are being used in the larger society(Harris, Mishra & Koehler, 2009). When technology is used in this manner,

the teacher becomes a mentor and facilitator of the teaching and learning process while learners are actively involved in the process of constructing knowledge (Garba, 2018; Jagtap, 2016).

Prior to the 21st-century, non-digital technologies are integrated in teaching and learning process for the purposeof enhancingthe learners' understandingand easy remembrance of the information conveyed by teachers (Obielodan, 2016).These non-digital technologies include but not limited to books, pens, paper, chalks, blackboards, whiteboards, printed pictures, maps, charts, and textbooks.The teachers that do integrate non-digital technologies are of the believe that effective learning will take place when learners repeatedly learn particular information presented through these technologies. Chalkboard remained the most commonly integrated non-digital technology in the teaching and learning process at the secondary school level. The teacher conveys the learning content to the learner via writing on the board along with verbal explanation and sometimes draw on the board to illustrate the information to the learners. However, the issues of knowledge application/transfer in the context of 21st-century workplace and development of positive attitudes via integration non-digital technologies remained a bone of contention among educational stakeholders (Nwodo, 2017; Hendry, 2015).

As digital technologies are now ubiquitous, different modes of technology integration are now being adapted in the education industry. Digital Presentation Technologies (DPT) are reported to be the most integrated digital technologies in the classroom (Gambari, 2017). These include but not limited to interactive whiteboards, LCD projectors, DLP projectors, Wireless Presentation System (WPS) and their corresponding computer applications (offline and online application) such as PowerPoint, Prezi, Google-presentation slide, Skype-video call, online synchronous and asynchronous presentations. The common feature of all these digital presentation

technologies is “multimedia”.Teachers can innovatively ‘dual-coding’ learning contents using text, audio and motion graphics/animations/real-videos. (Gambari, 2017, Yilmazel-Sahin, 2007).

Linear PowerPoint presentation remained the most commonly integrated DPT in the classroom. Linear PowerPoint is a pattern of PowerPoint slide design that proceed one slide right after another. The sheer popularity of this presentation tool comes from the belief that representation of information using auditory and visual inputs improves learning (Mayer & Moreno, 2003). Linear PowerPointis said to be very effective in drawing and maintaining students’ attention and this is reported to have a positive impact on students’ academic performance and motivation (Erdemir, 2009; Savoy, Proctor & Salvendy, 2009; Wofford, 2009). Linear PowerPoint appeals to sight and hearing which are the most used senses in teaching and learning activities (Gambari, Zubairu, Daramola, Abubakar, & Tukura. 2018). This mode of technology integration, however, is a semi-compromised 21st-century learning environment. The learners only received information presented by the teacher through digital technologiesbut they are not actually using digital technology to construct knowledge.The suitability of Linear PowerPoint, therefore,for digital natives (21st-century learners) has been questioned because the issue of students using previous knowledge to constructnew knowledge through interaction with learning content is restricted (Chen, 2012).

Interactive Digital Technologies (IDT) is not a new set of digital technologies but how the computer is programmed to meet the educational needs of 21st-century learners makes a different. IDTs allow the subject teacher to embed interactive elements in multimedia learning resources using their interactive features. When these interactive elementsare embedded in multimedia learning resources, students can learn at their own pace and actively interact with the digital information system. In this mode of technology

integration, digital technology served as a tool that students use to seek information that can address the problem at hand, perform tasks/carry out a project, organize the information and communicate the findings. The most commonly integrated IDT in teaching are WEB 2.0-based technologies (Wikis, Blogs; etc), Computer Assisted Instruction, and Authoring tools such articulated storyline, adobe-captivate andthe underutilizedPowerPoint.

PowerPoint application package came with interactive features that can be used in creating an interactive learning environment (Garth, 2010). These interactive features include hyperlinks, trigger, animation, custom shows, selection pane, animation pane among others. All these features can be used in creating Interactive PowerPoint. Interactive PowerPoint is a network of slide hyperlinked to one another which enable flexible navigation and user-friendly interaction (Kosslyn, Kievit, Russell, & Shephard, 2012; Garth, 2010; Poole, Jackson, & Randall, 2002). Teachers can innovatively integrate this technology in the teaching and learning process by creating a virtual project of different modes base on what the package features. Teachers can feature tutorials, game activities, virtual data collection, drill and practice activities or combinations of more than one feature depends on the predetermined endurable change in learns' behaviours. The overwhelming advantage of Interactive PowerPoint over other interactive media is 'guided screen.' The interactive PowerPoint uses the entire computer screen which prevent user(s) from using any other applications installed on the computer. Students cannot create a new tab, open new windows while Interactive PowerPoint is in presentation mode. This addressed the issue of "destructiveness" most often reported as one of disadvantages of integrating digital technology in the teaching and learning process.

The teacher in the Interactive PowerPoint learning environment has the fundamental role of prompting students to see the need for information in addressing the problem at hand; the need to collaborate with fellow students in solving the problem and the need to think critically in distinguish between relevant and irrelevant information. Adherence to this mode of technology integration simply means a deviation from common classroom practice of teacher-centered learning to that of uncompromised students centered learning where students are actively constructing knowledge rather than being a passive receiver. This deviation from common practices will have academic implications (positive or negative) on students' learning outcomes when applied in implementing curriculum contents of any school subject like civic education.

The civic education curriculum is held in high esteem by Nigeria government in realizing the unmet goals of using formal education as a tool to develop expected knowledge, skills, and dispositions essential for learners'citizenship engagement. The esteem associated with the subject by Nigeria government warrant disarticulation of the subject from social studies curriculum (Garba, Singh, Yusuf, &Ziden, 2013) to become an independent core subject in lower basic (primary school), upper basic (Junior Secondary schools) and Post Basic (Senior Secondary Schools) education in Nigeria. Civic education as a core school subject in Nigeria senior secondary schools is made up of three different elements, civic knowledge, civic skills, and civic disposition.The digital tools that the 21st-century usher-in are now being used extensively to demonstrate citizen's civic potentials via the use of digital tools, such as online petitions or automatic data aggregators, online-electioneering (Meira, 2014). These tools have extended citizenship beyond the country's boundary and is changing the learning preferences of contemporary students (Carretero, Haste & Bermudez, 2016). Using these technologies in implementing civic education curriculum will have educational implications on

students' academic performance and attitudes toward civic education as a school subject.

Academic performance is one of the commonly used indexes for determining students' success in learning specified curriculum content. It is a numerical rating obtained from continuous assessment and examination (Adediwura & Tayo, 2007). Students' academic performance at secondary school levels communicates to the government and other education stakeholders the effectiveness of schools, the well-being of youths in particular and the nation in general (Levin, Wasanga & Somerset, 2011). It is these numerical values that the educational industry commonly used to judge the effectiveness of any educational intervention, (Yusuf & Adigun, 2010). Using these measure alone as justification that learning has taken place have been criticized by educational stakeholders as inadequate. Useful knowledge is described as the knowledge that is transferable into skill and attitudes and applicable in real-life situations (Gano-Phillips, 2015).

Attitude represents our evaluations, preferences or rejections based on the information received. It is a learned predisposition to respond in a consistently favourable or unfavourable manner concerning a given object. An important consequence of instruction is the students' attitudes toward the subject. A student with low achievement might have developed positive attitudes toward the subject matter while students with high achievement might have developed negative attitudes toward the subject matter, vice-versa. Teachers need to be aware of the attitudinal characteristics of their students (Gano-Phillips, 2015). The likelihood of student putting his knowledge of civic education to use (applicability) largely depend on the student's attitude for or against the subject because things disliked has a way of being forgotten easily.

Based on the foregone background, the study investigated the effects of integrating non-digital technology of chalkboard, Linear PowerPoint and Interactive PowerPoint on student's attitude and academic performance in civic education in Zaria Education of Kaduna State Nigeria.

1.2. Statement of the Problem

The radical transformation of human society by digital technologies has triggered the need for digital technology integration in the planning and implementation of educational programme of 21st-century learners. 21st-century learners are native of digitally transformed society and their learning preference has been altered by digital technologies. Failure of schools to integrate these technologies may result into non-interesting learning environments and this may trigger negative attitudes toward schooling in general. In agreement with this position, Nigeria government in her National Policy on Information and CommunicationTechnologies (ICT) in Education boldly expressed the impossibility of qualitative education in 21st-century without integration of ICT into education (FRN, 2019).Kaduna state government in collaboration with Non-governmental organizations further translated Nigeria National Policy on ICT in Education into practice by equipped secondary schools in Zaria Education Zone with computer facilities for easy access and integration.These computer facilities are adequateenough to serve an intact class of 60-100 students. The teachers in these schools are furthered trained on how to used various components of the facilities in teaching and learning process.

The aforementioned efforts of Kaduna State government, particularly in Senior Secondary schools in Zaria education zone has not received desire positive response

from teachers implementing civic education curriculum in Zaria Education zone. The researcher observed that the teaching and learning of Civic education like any other subjects in Senior Secondary Schools in Zaria Education zone is still characterized by integration of non-digital technology and teacher-centered learning approaches even in the schools that have adequate digital technology at their disposal. This observation is in line with the report of Yusuf, Maina Dare, (2013) and Garba, Singh, Yusuf & Ziden, (2013) who reported that teachers in Kaduna State as a whole are not ready to integrate digital technologies in teaching and learning even when these technologies are readily available.

It is worth to note that civic education teachers' loyalty to non-digital technology integration and its corresponding teacher-centered teaching and learning approaches do not result intothe desired civic education learning outcomesin both affective and cognitive in Zaria Education Zone. Mukhtari (2017) reported that, in Zaria Education zone, only 46.31%, 45.61% and 35.82% in the year 2013, 2014 and 2015 respectively got credit in Civic Education external examination of West Africa Senior Secondary Certification Examination (WASSCE-Civic Education) while the rest of the students failed. Similarly, WAEC Chief Examiner Report (2018) (see Appendix 7) shows that many candidates that sat for civic education examination lack proper understanding of civic education subject matter due to poor coverage of the curriculum.Affectively, Idowu (2015)and Okeahialam (2013) reported that reintroduction of civic education in Nigerian schools has not significantlyimprove students' sense of and demonstration of national consciousness.

Inconsistencies exist on why civic education teachers in Zaria education zone remained loyal to the use of non-digital technologies and its corresponding pedagogy of teacher-centered learning despite inadequacies attributed to these technologies in

teaching civic education (Garba, 2018).Previous studies found teacher's pedagogical belief, non-availability of digital technology, lack of adaptable/adoptable digital instructional packages and disruptiveness as impediments to digital technology integration in teaching and learning (Chen, Liao, Chang, Hun & Chamg, 2019; Flavin, 2012; Inan & Lowther, 2010). Other studies also reportedinadequate knowledge of interlinks between content, pedagogy and technology as factors affecting the integration of digital technology in teachingand learning (Ukah & Odey, 2018; Lagace, 2008).

The issues of non-availability of digital technology in the context of Zaria Education Zone has been addressed as Civic education teachers in the zone have access to adequate computers installed with PowerPoint Application. This application has features that can be innovatively used to design and implement interactive and non-interactive 21stcentury complied learning environment.However, the academic implication of integrating any of the two modes of PowerPoint (Interactive and Linear PowerPoint) in the teaching of civic education in Zaria Education Zone has not been empirically established. How then can PowerPoint be innovatively integrated in civic education that will simultaneously improve student performance and developed positive attitudes toward civic education as a school subject? Desire to provide empirical-based answers to these question motivated researcher to embark on this research.

1.3. Objectives of the Study

The study aimed at determining the effect of technology integration on learning outcomes in Civic Education among senior secondary schools' students in Zaria educational zone, Kaduna state, Nigeria. Specifically, the study is to:

i. determine the difference in the academic performance of SSII students taught civic education using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State;

ii. ascertain the difference in SSII students' attitude toward learning civic education when taught using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State.

1.4. Research Questions

There are six research questions raised for this study. Research questions 1-4 are quantitative while five appeals to the qualitative aspect of the study. Thus, the research questions are stated below:

i. What is the difference in the mean performance scores of SSII students taught civic education using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State?

ii. What is the difference in SSII students' attitudes toward learning civic education when taught using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State?

1.5. Research Hypotheses

There are four research hypotheses formulated for research question 1-4; these are:

i. There is no significant difference in the mean performance scores of SSII students taught civic education using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State?

ii. There is no significant difference in students' attitudes toward learning civic education when taught using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State?

1.6. Significance of the Study

The significance of this study lies solely on the benefits the education stakeholders will derive from it after being published in journals and other related means of information dissemination. Teachers, researchers, parents, government, students, curriculum planners, and instructional designers will all find this study useful in different ways.

The teachers will find this study useful because it will reveal to them the potentiality of integrating digital technology into teaching and learning of civic education. The teachers that directly participated in the study and those that will come across the findings of the study after being published will find this study useful in decision making on whether to stick to teacher-centered practices or to adopt the digital technology that promote student centered learning while teaching the selected concept of civic education in Nigeria schools. The review of digital technology integration will serve as a source of information for civic education teachers on diverse ways of integrating digital technology in teaching.

The curriculum planners will find the findings of this study helpful in reviewing the civic education curriculum to reflect 21st-century classroom setting. The findings after being published will communicate to the curriculum planneron the need to review civic education curriculum by recommending integrationof digital technology that is capable of moulding the characters of the learners to reflect an effective citizen.

The researchers will find the outcome of this study useful in extending researches in this area of digital technology integration. The models, the Interactive PowerPoint and the instruments to be used in this study can be adapted/adopted for further study. This will extend the advocate for the integration of digital technology into the teaching and learning process.

The instructional designers will find this study useful in diverse ways; first of all, they will be exposed to how researcher used the three learning theory paradigm (behaviorist, cognitivist and constructivist) approaches to design instruction peculiar to each of the approaches and the implication of such on students learning outcomes. They will also be exposed to how commonly available digital technology tools like PowerPoint can be innovative use in creating an interactive learning environment.

1.7. Scope of the Study

The study is limited to some selected senior secondary schools in the Zaria Education Zone of Kaduna State. The study only selected three national issues incivic educationthat is; National Development, National Integration, and Political Apathy of the Curriculum content (SSII). The teaching of civic education using the three modes of technology integrationmay have different effects on students learning outcomes but the present study is only concerned with students' academic performance and attitude toward civic education as a school subject.

CHAPTER TWO

REVIEW OF RELATED LITERATURES

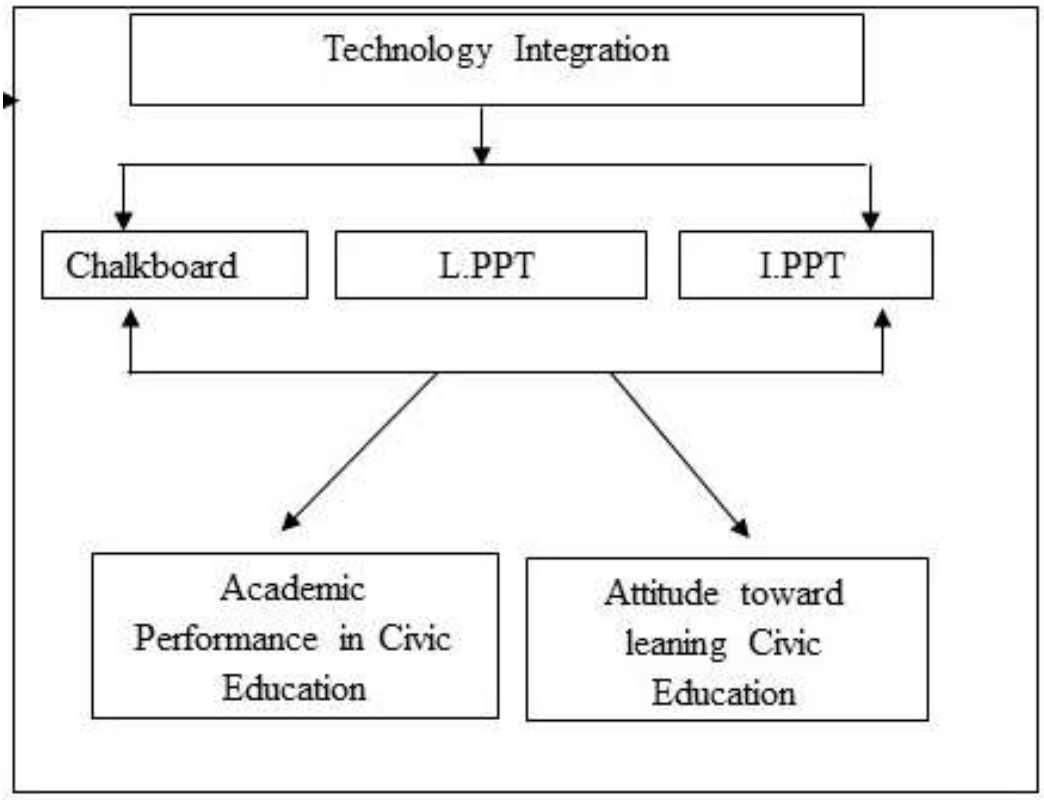
2.1. Introduction

This chapter contained information about the conceptual framework, theoretical framework and review of related empirical studies. The chapter provide information that can help reader to understand how the study is conceptualized. The need to build a foundation, demonstrate how study of this kind advances knowledge, conceptualize the study, assess research design and instrumentation and provide a reference point for interpretation of findings warrant this chapter (Rocco, & Plakhotnik, 2009). The review is organized on the following subheadings;

- Conceptual Framework
- Theoretical Framework
- Civic Education in the Nigerian School System
- Approaches to Technology Integration
- Technology integration and Students' Academic Performance
- Integration of Linear PowerPoint and students' Academic Performance
- Integration of Interactive Power Point and students' Academic Performance
- Pedagogical Functionality of Technology Integration
- Review of Empirical Studies
- Summary

2.2. Conceptual Framework

This section presents a description of interrelationship between concepts that features in this study by defining the main ideas and the network of relationships between the concepts that situated this study. The conceptual framework of the study is



present in Figure 1:

L.PPT: Linear PowerPoint, **I.PPT:** Interactive PowerPoint

Figure. 1: Conceptual Framework for Technology Integration Effects and Students Learning Outcome (CF-TISLO)

The study focused on technology integration in civic education.The study exploitsthe effect that will be exerted on students' academic performance and attitude toward learning civic education when non-digital technology of chalkboard, Digital technology of Linear PowerPoint and Digital technology of Interactive PowerPoint is integrated in teaching and learning of civic education. The end-goals,therefore, is to

know which of these technologies will have a dual effect of increasing students' academic performance and at the same time create enduring disposition that will make students have positive attitude toward learning civic education. This will enable researcher to make knowledge-based recommendations on the appropriate technology that is capable of improving students' academic performance at the same time create appropriate attitude in the learner toward learningof civic education.

2.2.1. Concept of Technology

Technology has permeated virtually all aspect of human life. Its impact can be felt in the substitution of man labour for alternative machines. Through technology, humans have acquired powerful capabilities to transform their natural environments locally, regionally, and, more recently, globally (Grubler, 2012). Popularity of technology in all human endeavours makes its conceptualization difficult and ever remained one of the most debatable concept among scholars (Abdel-Wahab, 2012).

Ethnologically, the word "technology" is of Greek origin, based on "techne" that means art or skill and "-logy" that means "knowledge of" or "discipline of". The word was introduced into Latin as a loanword by Cicero (Steele 1900, 389).Looking at technology from commonsensical perspective, technology consists of manufactured objects like tools (axes, arrowheads, and their modern equivalents) and containers (pots, water reservoirs, buildings). Their purpose is either to enhance human capabilities (e.g., with a hammer you can apply a stronger force to an object) or to enable humans to perform tasks they could not perform otherwise (with a pot you can transport larger amounts of water; with your hands you cannot). Engineers call such objects "hardware". Anthropologists speak of "artifacts" (Grubler, 2012). The definition of the concept of technology that fitted into this perspective is when technology is defined as application of scientific knowledge for practical purposes (Hlynka & Jacobsen, 2009).In broader

sense, the commonsensical concept of technology explain technology as an instrument; equipment; device; infrastructure; and tool used to support, facilitate and sustain effective and efficient performance of a system. It is also use in performing operation, a duty, a task and a function as well as provision of a varied service (Zakari, 2015).This perspective of conceptualizing technology ignores knowledge-based aspect of technology (making and using). In a broader sense, technology refers to *wha*t things are made and *how* things are made and used. This implies that technology is not limited to the machine we are seeing, it encompasses the machine, how it was made and how is to be used. The technology as a concept encompasses the product, the knowledge and information of itsusage/application and the process in developing the product (Sazali, Raduan & Osman, 2012). Technology in the context ofthis study is viewed from four dimension as depicted in Figure 2.

Figure 2: Centre Left and Right ofTechnology (CLRT)

As depicted in the figure 2, the product is the centre of technologyand what is commonly regarded as technology (Computer, smartphone, car among others),prior to the technical embodiment, technology is embodied in human who conceived the ideas.This idea required being transcribed into deducibleinformationexpressible in model

or procedural write-up (the knowledge of making). These modelsor procedural write-up arethereforetransformedinto tangible object/product (the process of making). The product is not end in itself but meant to be used(require knowledge of using) in order to create or solve a particular problem through specified processes (process of using).Technology as used in this study is 'centre right'of technology that is the knowledge and process of using existing technology and its corresponding software to facilitate teaching and enhance learning.

2.2.2. Concept ofTechnology Integration

All human endevour are finding means of integrating technology into their profession on the basis of the overwhelming positive findings that can stand 'test of all time' attributed as effect of technology integration in other human endeavours.Technology has become a fundamental requirement to survive the challenge of living in the 21st century, (Garba, 2014; Garba, Singh, Yusuf & Ziden, 2013).Technology assumes significance only through its application (innovation) and subsequent widespread replication (diffusion).

Technology integration has been shallowly view from the perspective of using software supported by the business world for real-world applications so students learn to use computers flexibly, purposefully and creatively (Jolene, 2015).This perspective of technology integration has been countered by other authors in assertive manner; they suggested that technology integration should not be limited to computers (Clements & Samara, 2002). Students can use tools, such as cameras and MP3 players, to capture learning as well, (Boni, 2015). Technology integration does not always have to do with the computer. It can be the use of the overhead projector, student response clickers and so on. Enhancing how the student learns is very important in technology integration.

Viewing technology integration from another dimension, Okojie, Olinzock, & Okojie-Boulder, (2006)lamented that technology integration not only involves the inclusion of technical artifacts per se, but also includes theories about technology integration and the application of research findings to promote teaching/learning. Technology integration involved incorporation of technology resources and technological-best practices into the daily routines, work, and management of schools. Technology resources include computers and specialized software, network-based communication systems, and other equipment and infrastructure. Practices include collaborative work and communication, and Internet based research, remote access to instrumentation, network-based transmission and retrieval of data, and other methods. The goal of integrating technology is to connect software, media, and technology tools with specific instructional objectives in ways that facilitate instruction and scholarship.

Technology integration in the context of this study refers to determining and incorporating appropriate technological tools that bring aboutpedagogical functionality of creating learning context (environment), facilitate teaching and enhance learning, (Roblyer 2003). The scenario of what should be regarded as technology integration has made some authors such as Garba, (2018) to classified technology tools/devices that is being integrated into teaching learning process into two broad categories; digital and non-digital technology.This categorization need more elaborate conceptualization.

2.2.3. Concept ofNon-digital and Digital Technology Integration

Non-digital technologyintegration refers to incorporation ofolder technologies and information systems, such as books, pens, paper, chalks, blackboard, whiteboards, printed pictures, maps, charts, and text books into teaching and learning process for the purpose of facilitating teaching and enhance performance (Mishrah & Koehler, 2006). These technologies have limitation of interactivity and is more useful in a passive

learning/ teacher centered learning. This mean that integration of such technology put learners in a state ofknowledge receiver rather thanconstruction of knowledge.

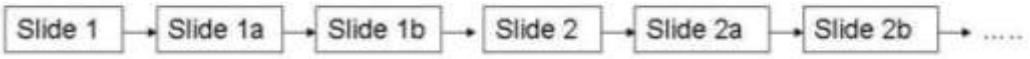
Before conceptualized what digital technology integration implies, it is of important to have an insight on what the term “digital” implies. Digital describes electronic technology that generates, stores, and processes data in terms of two states: positive and non-positive. Digital information is very different from its physical counterpart, (NetSAFE, 2015). Physical information has a fixed position in place and time. This is not the case with digital information, which can be rapidly duplicated and easily distributed for example a message posted via social media is reposted elsewhere by friends or an email sent to a list of recipients within a very short time frame. Digital resources can be stored in multiple locations, e.g. a photo can be stored simultaneously on a laptop, a smartphone and inthe Cloud. Created and communicated automatically, for instance a smartphone can synchronise emails with another device or an online service(NetSAFE,2015).NetSAFE, (2015) categorized Digitaltechnology media into two broad categories; ‘born digital’ and ‘digitalized’a born digital is an Information that is digitally created and stored; for example, a house plan design using AutoCAD, animations, games among others while digitalized one are Information that previously in physical formatswith the help of appropriate hardwareand software the information is converted into digital format or in electronic format, for example a video showing how to prepare AMALA (not animation).

Digital technologyintegration refers to the use of newer technologies in the digitalization of the schools and teachers’ everyday practices. The concept includes various information, communication and administration technologies and software, as well as to devices such as computers, either connected to the Internet or not, and to mobile phones equipped with Global Positioning System (GPS), sensors of different

kinds, as well as whiteboards and projectors with or without interactivity (Mishrah & Koehler, 2006).

2.2.4. Concept of Linear PowerPoint Presentation

PowerPoint is a standard part of the Microsoft Office software package which is used for preparing a sequence of slides that are displayed to the audience on a computer-guided monitor. Presentation developed with this type of software can be saved digitally and easily modified, facilitating future use. Microsoft PowerPoint allows teachers to include chart clip, art photographs, sound or video segments to demonstrate concepts (Effiong & Ekpo-eloma, 2016; Marcovitz 2012). The above description portrait linear format of PowerPoint that is, each slide is designed to proceed one slide right after another. The first slide transitsto the second, which transit to the third, and so forth (Garth, 2010). The traditional PowerPoint presentation is known as a “slide show” which



includes a series of screens presented one after another just as slides in an old-fashioned slide projector.

Figure. 3: Linear PowerPoint

Source: Chen, (2012)

The linear format of PowerPoint has limitation of interactivity and only support semi-compromised 21st-century learning environment because student only get information through digital technology passively as par no interacting with digital information system. Despite these limitation, Power-Pointapplication is highly embraced by educators and they use the application mostly in creating simple presentations (Linear PowerPoint). The application enables teachers to add varieties of media to a lecture, but

it “falls flat” when creating interactive lessons for students to use while sitting in front of the computer (Marcovitz, 2012).

2.2.5 Concept of Interactive PowerPoint

The concept of Interactive PowerPoint (IPP) is not as popular as the linear format. Interactive PowerPoint is an innovative use of PowerPoint application in packaging learning materials in a manner that resemble website which allow targeted users (Presenter or students) to actively controlling the learning process by making choices about the direction and depth of the lecture (Garth, 2010). The pathway of the show is determined by the student's interaction with it. The idea is simply to switch off the way that PowerPoint goes from slideto slide by given full power of navigationto the user(s) through interactive features of PowerPoint such as hyperlinks, triggers, custom-show among others, (Garth, 2010, Poole, Jackson, & Randall; 2002). The interactive PowerPoint presentation style is noticeably attractive and dynamic in interacting with the audience through the visual interactivity because it gives the presenter complete flexibilities to navigate to any desired PowerPoint slides and create the “WOW” factors throughout the entire presentation (Lane and Kosslyn, 2011). This mode of power point presentationcan be used in designing an interactive module that contain series of tutorial, social games, virtual data collection and quizzes which students interact with at individual and group level on the selected subject of civic education. As it can be seen in

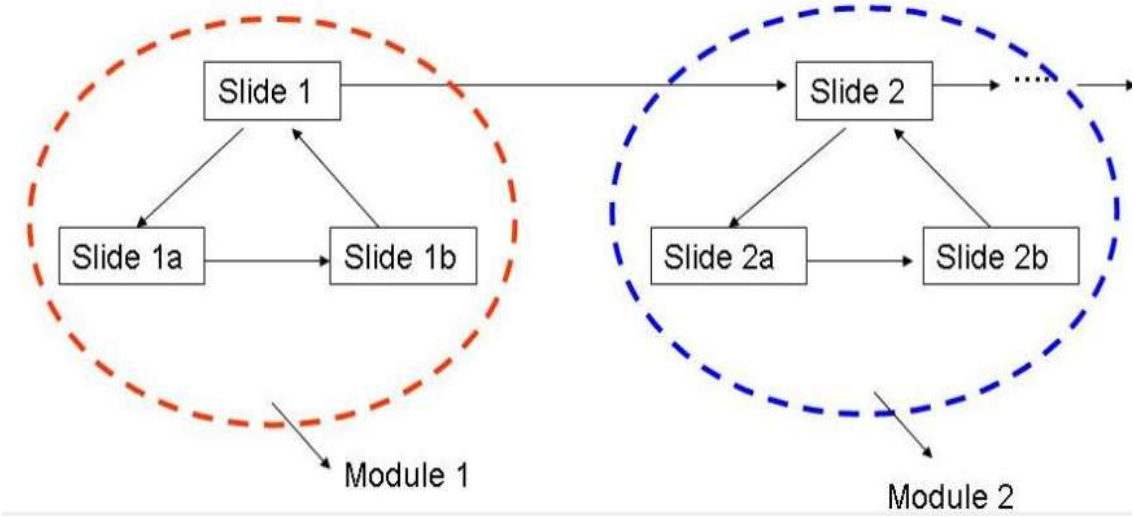


Figure 3, interactive PowerPoint is a network of slide hyperlinked to one another which enable flexible navigation and user friendly interaction with the contents.

Figure 4: Interactive PowerPoint

Source: Chen, (2012)

The interactive features of PowerPoint such as hyperlinks, action-button, trigger, custom shows and the in-built Visual Basic for Application (VBA) allow teachersto put interactivity in PowerPoint Show. These features allow teachers toadd buttons to control navigation (start your slide show with a menu,for example, rather than requiring linear navigation from slide toslide to slide);jump to other PowerPoint presentations, other files, or Web pages;andcreate rudimentary multiple-choice tests (clicking on a button withthe correct answer takes the student to a slide that says “correct,” forexample) among others, (Marcovitz, 2012).

Interactive PowerPoint (IPP), being an emerging interactive media has not been generically categorized nor defined by previous studies. The best way of doing this is by categorizing IPP on the basis virtual project to be carried by students using the information inbuilt in the package. In this way, IPP can be categorized as: Interactive PowerPoint of Virtual Inquiry (IPP-VI), Game-Based Interactive PowerPoint (GB-IPP), Interactive PowerPoint of Drill and Practice (IPP-DP), Interactive PowerPoint of Tutorial Only (IPP-TO). All these modes can be design with or without VBA code (Marcovitz, 2012, Garth, 2010)depends on teacher expertise, creativity and desired students centered learning environment. The common features of these modes of IPP is multiple representation of information and the application of knowledge in scenario. This model is in line with constructivist model of learning where the knowledge acquired in the information inbuilt in the package is to be used in executing the project at hand and the students are at liberty to determine the level of information they need among the information provided in order to successfully executive the virtual project.

2.2.6. ConceptofCivic Education

The desire to have effective and responsible citizens is ofinternational oriented. Nations ofthe world have been using education both formal and informal to mold the character of their citizens in the direction that will promote a peaceful and integrated society. In Nigeria school, curriculum that is specifically design to achieve this goal is 'civic education'. NERDC (2007) in Obebe, Muasu, Ambassador-Brikins and Koledoye (2009) defined civic education as "the process of inculcating in the individual his rights and responsibilities to himself, society and government, as well as the desirableknowledge, attitudes, norms, values, morals and actions necessaryfor the survival and sustenance of society".Seeing civic education from international perspective, USAID (2002) described Civic and Citizenship Education as a process of awareness-raising and enlightenment, aiming at helping students to acquire a new culture focusing on strong civic and citizenship values, based on a system of rights, civic duties, respect of human rights, democracy, justice and the rule of law. Civic Education also aims at providing students with values, thoughts, and perceptions of modern civic trends that can contribute to developing their consciousness.Going by this definition, teaching of civic education in formal school basically orientate the learners in order to embracing and practice what is generally conceived as capable of enhancing living together as a social animal. In other word,Civic educationis a systematized educative process through which the target learner is oriented to governmental functioning in a given democratic society as well as the learner's rights and correlative responsibilities, all geared at producing or developing, informed, participative, and responsible citizens (Akpan & Ukpong 2015).

In this study, civic education is regarded as educational process aim at instilling behavioural triggers that are sensible to social stimulus and capable of triggeringappropriate behaviours to such social context. Teachingofcivic education in

Nigeria school is expected to instill in student's appropriate attitudes toward political participation, fundamental human rights, civic responsibility and correlative government responsibility.The nature of this preinstalled attitude should be evidently shows in their behaviours toward the aforementioned social contexts.

2.2.7. Concept of Academic Performance

In relation to educational research, academic performance of a student can be regarded as the observable and measurable behaviour of a student in a particular situation. This term connotes displayed of knowledge attained or skill developed in school subjects designed by test and examination scores or marks assigned by a subject teacher (Obeka Bichi & Yusuf, 2012). Academic performance depicts the overall measure of student's performance in a given test after a period of instruction and teaching, usually weighed as a score. Wilson and Peterson, (2006) on the other hand maintain that students' performance is concerns with intellectual skills which lead to the satisfactory means of adjustment, social sensitivity and adequate self-concept. For example, the academic performance of a student in civic education includes observable and measurable behaviour of a student at any point in time during a course. In civic education, students' academic achievement consists of his scores at any particular time obtained from a teacher- made test. Academic performance as used in this study means numerical rating of student performance in all the activities staged to determined extent to which learning have taking placed on topics under consideration.

2.2.8. Concept of Attitude

There are less words that constantly appear in human conversation like attitude. Attitude is a trigger of behaviours and behaviours covers our verbal, none verbal and physical responses to any situation. The trigger of behaviours (attitude) can be negative or positive, both produce behaviours of their own kind. Attitudes play a major part in

determining a person's personality. This is because attitude affect the way people perceive and act towards people, objects or events that they encounter. Besides that, attitudes can also have an effect on one's social interactions. Attitude is acknowledged to be a concept that is very difficult to define (Walther & Langer, 2008). Allport (1935) defined attitude as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" This definition and others that follow its suit have received different dimension of counterpoints such as Eagly and Chaiken (1993) who seen deficiency in the definition from the dimension of what attitude does, he also came with his own definition which stated that attitude is "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" In subscribing to the notion of "featuring of evaluation" in attitude definition Crano and Prislin (2006) conceptualized attitude as "the evaluative judgments that integrate and summarize ...cognitive/affective reactions"

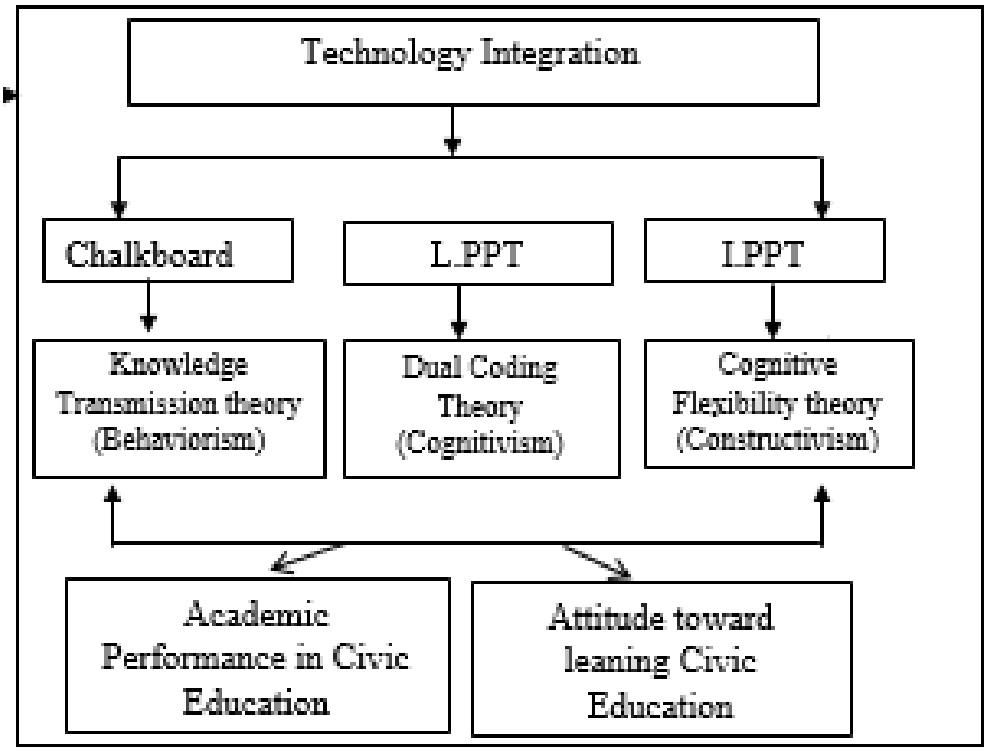
Going by differences that exist in the concept of attitude, this study used the term attitude to refers to an innermost trigger; fashion from the previous experiences; which could be of negative or positive; outputting action according to its kind toward object of concern. Attitudes are systems or constructs that are composed of three interrelated qualities: affective responses, cognitions, behavioral intentions (Lashari, Alias, Akasah, & Kesot). They vary in direction (positive or negative), degree (amount of positive or negative feeling), and intensity (the level of commitment the individual has to the position). Attitudes are not directly observable, but the actions and behaviors to which they contribute may be observed. Formation and change of attitude are separate entities. People are always in a state of modifying, manipulating, and adjusting to fit their ever-changing interests and needs. (Halonen & Santrock, 1999) and an attitude toward

learning is created when a student possesses curiosity, and the motivation to learn (Chowdhury, Parvin, Weitenberner, & Becker, 2006).

It is very important for teachers to be aware of the attitudinal characteristics of their students. Attitude is used in this study as behavioral triggers acquire through civic education learning experiences which influence their conscious and unconscious expression of like and dislike for civic education as a school subject. In others word, how are the experiences (behavioural triggers) in civic education classroom influence the personal judgment (attitude) of like and dislike for civic education as a school subject.

2.3. Theoretical Framework

Theories of learning provide a pedagogical basis for understanding how students learn and they enable teachers to become increasingly sophisticated in their understanding of the purpose and nature of teaching (Sofadekan, 2012). In this study, four theories were considered and upon theirprinciples, the instructional packages for this study were built. These theories are knowledge Transmission theory, dual coding



theory and cognitive flexibly theory.

Figure 5: Theoretical Framework

2.3.1. Knowledge Transmission Theories

Knowledge Transmission theorist see learners as “sponge” considered to be empty vessels, blank slates, or passive observers. The assumption has been that if teachers speak clearly and students are motivated, learning will occur. If students do not learn it is because they are not paying attention or they do not care. These ideas were grounded in theories of learning that focused on behavior. One behavior leads to another, behavioral-learning theorists argued, and so if teachers act in a certain way, students will likewise act in a certain way. According to Gagne and Medsker (1996) in Fakomologbon(2016), “behaviorist theories assumed that learning could be studied and facilitated by manipulating only the external environment of the learner, observing the learner’s overt behaviour and managing the external consequences of that behaviour”(p.12). To behaviorism, learning is nothing more than the acquisition of new behaviours. It is stimulus-response based and this implies that the teaching and learning process must have and maintain the appropriate stimulus for effective learning to take place. Invariably, if certain incentives are not present or do not occur, then the expected and desired performance may not take place. Central to behaviorists, (B.F. Skinner, Pavlaw;) was the idea of conditioning; that is, training the individual to respond to stimuli. The mind was a “black box” of little concern (Wilson & Peterson, 2006).

Knowledge transmission theories also referred to as teacher-centered models, are based on the assumption that learning involves the accumulation of particular sets of facts and skills,teaching involves the transmission of facts and skills by an expert and assessment involves an accounting of whether the desired facts and skills have been

acquired.Williams (2006) asserts that this pattern became the model or teaching template for countless decades of instruction having the same basic steps which include teachers present the information while the students listened carefully; students take notes and memorize them, teachers interacted with the students through teacher- directed questions and answers, students returned this information to the teacher to prove they had learned the content of instruction.

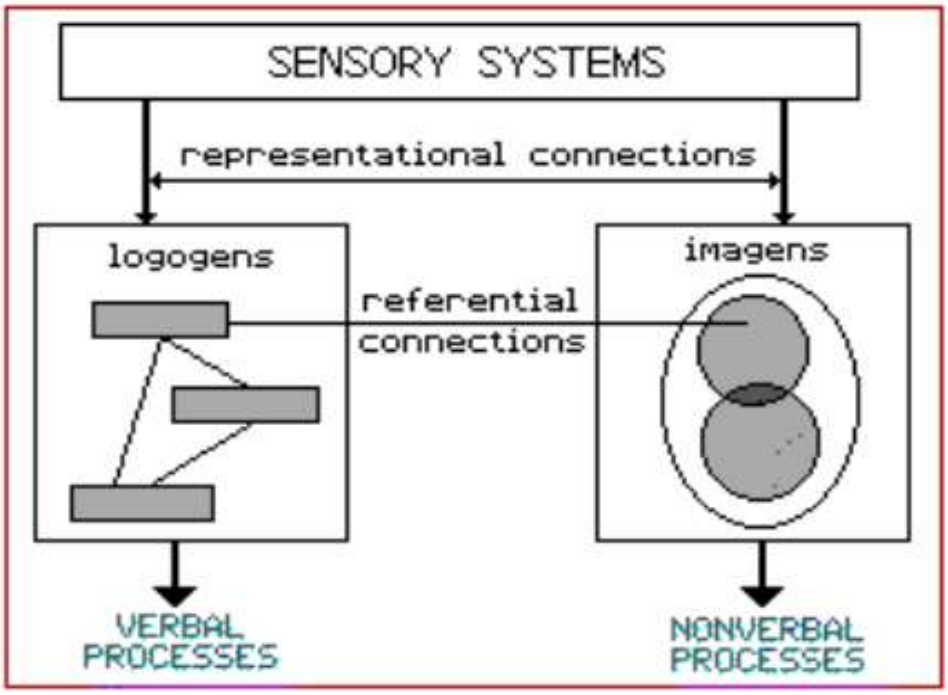
The theory is relevance to the present study in diverse ways. First of all, the teaching and learning environment in Nigeria school only compliance with behaviorist theories of what teacher and students do in teaching and learning process. Teacher present the topic and convince learner that that is the factand they must master it in order to pass examination. This fact is also presented in non-digital technology that supported them such as maps, textbook chalkboard among others.This method has recorded a great success as it has recorded same great failure, (Adegoke, 2011). What success then can be ascribed to it, is it in knowledge acquisition or knowledge application? On the other hand, the theory is inadequate for the present study. The theory is based on operant conditioning and classical conditioning whose principles give insufficient opportunities for student to construct their own learning (Wilson & Peterson, 2006).

2.3.2. Dual Coding Theory

The dual coding theory proposed by Paivio attempts to give equal weight to verbal and non-verbal processing. Paivio (1986) in Paivio (2006) expressed that human cognition is unique in that it has become specialized for dealing simultaneously with language and with nonverbal objects and events. Moreover, the language system is peculiar in that it deals directly with linguistic input and output (in the form of speech or writing) while at the same time serving a symbolic function with respect to nonverbal

objects, events, and behaviors. Any representational theory must accommodate this dual functionality.

The main principle of the theory is that recall/recognition is enhanced by presenting information in both visual and verbal form. The theory assumes that there are two cognitive subsystems, one specialized for the representation and processing of nonverbal objects/events (i.e., imagery), and the other specialized for dealing with



language (Kearsley,2003). Paivio also postulates two different types of representational units: "imagens" for mental images and "logogens" forverbal entities which he describes as being similar to "chunks" as described by Miller.

Source: (Paivio, 2006).

Figure 6: Dual Coding Model

The representations are modality -specific, so that we have different logogens and imagens corresponding to the visual, auditory, and haptic (feel), and motor properties of language and objects. The representations are connected to sensory input and response

output systems as well as to each other so that they can function independently or cooperatively to mediate nonverbal and verbal behavior. The representational activity may or may not be experienced consciously as imagery and inner speech Paivio, 2006).

Dual coding theory is of cognitive perspective on how learning take place. The theory emphasized on how brain encodes visual and verbal information simultaneously but differently, in separate areas. Mayer (2003) propounded that visual processing can occur simultaneously and efficiently along with verbal processing because different brain regions are involved. She further stressed that integrationmeaningful (content), pictures, video clips and other forms of rich media on slides provides the best learning environment for learners.Images are able to explain, simplify or expand concepts in ways that are very difficult to do with text or even with spoken words. Using picture-based visual communication is able to improve learners' learning and recalling (Mayer, 2003).

Dual Coding Theory is relevant to the present study because it gives insights on how multimedia instructional packages ought to be design for easy internal processing. Dual coding information in verbal and none verbal format as recommended by DCT for easy comprehension of information can be achieved with PowerPointusing its diverse features that made multimedia presentation easier. Instruction packages designed and deliver via this software are reported to improve student performance (Effiong and Ekpo 2016).

Dual coding theories is more of teacher centered approach of technology utilization in classroom instruction.The theory did not emphasize the issue of student using technology tools to construct their knowledge. Based on the principles of dual coding which others study reported to be effective in improving students' academic performance; are the principles adequate in creating enduring attitude in learner as the

theories only emphasized presentation of knowledge contents in both text and image.Consideration is not given to student's participation in learning, constructing their learning using previous knowledge. Dual coding theories in many ways still emphasized passive learning. Bearing in mind the constructivists conditions for meaningful learning to take place.

2.3.3. Cognitive Flexibility Theory

The Cognitive Flexibility Theory, introduced by Spiro, Feltovich, and Coulson in 1988, extend the constructivist (Dewey, Vygotsky, Bandura among others) perspective on how learning take place.The theory specifically focused on how learning take place in "complex" and "ill-structured domains". In essence, it's a theory that strives to determine how the human mind can obtain and manage knowledge and how it restructures our existing knowledge base on the new information received. Conceptually, cognitively flexibility is way of creating learning opportunities that develop ability to spontaneously restructure one's knowledge, in many ways, as demanded by radically changing situational demands (Spiro & Jehng, 1990: 165). This ability is a bye product of the way knowledge is represented (e.g., along multiple rather single conceptual dimensions) and the processes that operate on those mental representations (e.g., processes of schema assembly rather than intact schema retrieval) (Spiro & Jehng, 1990).

CFT proposes that learners develop a better understanding of the complexity of content by engaging with multiple representations of the same information in different contexts. The theory suggests that seeing multiple representations of the same content or phenomenon helps learners develop mental scaffolding necessary for considering new applications of the knowledge in their knowledge in new situations (Cheng & Koszalka, 2016). Cognitive Flexibility Theory is thus contextualized as an instructional prescription to help students achieve more deep learning in authentic ill-structured contexts, to be able to think about this new knowledge flexibly, and to be able to apply this new knowledge to novel situations (Spiro et al., 1992). Flexible is used to describe knowledge representation in human minds, which provides insights into principles for creatinglearning resources that may better support or prompt learners to develop the capacity to understand content from multiple perspectives.

"A central claim of cognitive flexibility theory is that revisiting the samematerial at different times, in rearranged contexts, for different purposes, and from different perspectives isessential for attaining the goals of advanced knowledge acquisition (mastery of complexity in understandingand preparation for transfer)" (Spiro et al., 1995, p. 93-94). The Cognitive Flexibility Theory relies upon the idea that learners must not only be able to manipulate the means by which knowledge and content are being represented, but also the processes that are in charge of operating those representations. The themes of cognitive flexibility theory are two faceted condition; the condition for developing mastery of complexity and knowledge transferability.

Specifically, CFT belief that Knowledge is "context-dependent" that is knowledge cannot beperceived out of context. It is the context that allows learners to see any possible relationships between various components of the subject matter presented. They the theory also propounded that 'Knowledge cannot be oversimplified' that is instructional materials to be used must not oversimplify a topic neither in terms of content, nor in terms of structure. Simply stated, knowledge cannot be reduced to its basics. The theory also agreed that 'knowledge is constructed.' The instruction that takes place should be "case-based", wherein there is an emphasis on the construction of knowledge rather than on how it is transmitted to learners. The theory further established that 'knowledge is interconnected'in order for the learner to grasp what is being taught, the knowledge sources that are used should be "interconnected", rather than separated and "compartmentalized".

Cognitive Flexibility Theory provides instructional designers and informed-educators with a framework to develop the learning environments and scenarios that can engage learners more effectively in developing deeper knowledge (and application) for ill-structured problems. The keys to building such learning environments include: using

multiple knowledge representation; using multiple cases linked to abstract concepts; rearranging, decomposing, and establishing of connections among cases; and early introduction to domain complexity, (Cheng & Koszalka, 2016).

This theory gives a theoretical foundation for the present study in the area ofpapering interactive PowerPoint.Its principles of context-based-knowledge and multiple representation of the same contents was used in designing interactive PowerPoint using hypermedia feature of PowerPoint. Knowledge acquire via teaching ofcivic education is expected to be applied as situation demand be it workplace, at home, during election and other context.CFT suggest that Knowledge that have to be used in many ways has to be learned, represented, and tried out (inapplication) in many ways(Spiro, et al 1988). The best way of achieving this is multiple representations via multiple precedent (Spiro, et al 1988).

2.4. Civic Education in the Nigeria School System

civic education was initiated with the intent to guide learners to construct knowledge, develop dispositions and skills about man in his diverse settings from an integrated view (Ogunyemi, 2011). The new civic objectives and content gave more attention to nationalistic values like civic duties and participation which requires absolute national loyalty, identity, integration and obedience to state values (Idowu, 2015). Its focus is on citizen rights and autonomy. The major goals of civic education in Nigeria is to produce responsible citizens.The teaching of civic education is expected to equip learners with knowledge and understanding about how government in a given polity works (principles and practices), particularly in a democracy. The curriculum content of the civic education is adequate enough to make learner aware of his rights, duties and obligations, participatory civic skills and meaningful collaboration with fellow citizens(Akpan & Ukpong, 2015).The Universal Basic Education (UBE) implementation

guideline proposed that effective citizenship, at the basic education level, involved learners developing knowledge, skills and dispositions allowing them to discharge their civic/citizenship obligations efficiently and competently.

The Civic Education curriculum according to Yahya (2013) in Ajibola and Audu (2014) addresses young Nigerians in the formative educational years. The contents address issues that are important to developing young Nigerian people into responsible citizens. In other words, the curriculum enables our young people imbibe the values, norms, knowledge, actions and activities for sustainable development. The components of civic education in the Nigerian school system include civic knowledge, civic skills and civic disposition (Enu & Odey 2017).

The curriculum planners of civic education encourage the use of inquiry teaching method which they regarded as best method of teaching. They stressed that teacher must encourage democratic teaching and learning processes, in which the pupils are the centre of activities in the class (Obebe, Muasu, Ambassador-Brikins and Koledoye, 2009). Civic education teachers can use inquiry teaching method in three ways as recommended NERDC in Obebe, Muasu, Ambassador-Brikins and Koledoye, (2009) either as research activities, oral activities or as creativity activities. As a research activity,students are involving in finding out and organizing information through reading, interviewing, observing, collecting, listening and experimenting. As oral activities, this include role-playing, oral book reports, panel discussion while as creativity activities involves essay writing, speaking, drama, simulation game, music and model construction. Some relative art activities might include drawing, carving and painting. None of these recommended method of teaching civic education is teacher centered.Emphasis is placed on student discovering knowledge rather been passive receivers. This demands involvementof students in the world beyond the classroom and a student-teacherrelationship of shared

activity (Obebe, Muasu, Ambassador-Brikins and Koledoye, 2009). The interactive features of PowerPoint permits creation of learning environment that are students centered in nature and gives students full freedom to learn construct knowledge using the previous knowledge.

2.4.1. Civic Education Implementation Lapses in Nigeria Secondary Schools

Ever since civic education re-introduction in 2006, studies has been carried out to established its effectiveness and most ofwhich are survey of stakeholder's perceptions on whether civic education has been able to fill the gap that social studies could not fill that warrant lifting of civic education content from social studies curriculum. One the implementation lapses found in the literatures is inadequacy of the qualified teachers to implement civic education curriculum. This according to Idowu (2015) has led to personnel improvisation which made civic curriculum classroom teaching ineffective because teachers displayed poor civic content knowledge and teaching skills. This unqualified teacher is also saddle with excess teaching loads and large class size.

Adediran, Ibrahim and Adelegun, (2012) alluded that is it not the matter of specialist in subject area that is the problem, that Nigeria teachers in general are addicted to teacher centered teaching and learning approaches. The Innovative methods that encourage critical thinking, creativity and productivity are rarely used in instructional delivery in secondary schools in Nigeria as commonly regarded as waste time. In the same alignment, Ezegbe, Oyeoku, Meziovi & Okeke, (2012) found that civic education teachers are not carrying out instruction using participating approaches such as field trips, inquiry and dramatization because of theyare time consuming in nature. It could probably be that Civic Education teachers don't use participatory approach either because they lack knowledge of such method or because they are not fully aware of the

efficacy on Civic Education in solving social problems in our society (Ezegbe, Oyeoku, Meziovi& Okeke, 2012).

Studies (Idowu, 2015; Ifegbesan, 2008; Falade, 2011) show that most Nigerian civic classroom implementation focuses more on cognitive (knowledge) objectives at the expense of affective (dispositions) and psychomotor (skills) domains. Evidence of overemphasis on knowledge in civic education is revealed in studies on the domain-focus of civic education objectives in Nigeria. A study shows that majority of civic objectives for the upper basic level (JSS 1-3) are knowledge-based while few are affective (dispositions) laden and the psychomotor (skills) domain is absent (Ifegbesan, 2008; Falade, 2011;).

The civic curriculum currently implemented suggests that most civic objectives are stated in cognitive terms using words such as identify, explain, mention, differentiate and list showing the curriculum as inducing knowledge to the detriment of disposition and skills (Idowu, 2015). However, unduly stressing knowledge domain indicated it is examination oriented thereby impeding effective civic practice in the school and community (Idowu, 2015; Okam, 2008). The absence of dispositions and skills based issues in the civic objectives limits learners' chances of gaining experiential learning by practicing knowledge construction.

The aforementioned implementation lapses have made civic education ineffective in sowing the seed for the actualization of national objectives in Nigeria. Study shows that Students' sense of and demonstration of national consciousness has not matched up to their ethnic and religious devotedness (Okeahialam, 2013).Teaching of civic education therefore has not been able to neutralized quest for quick material gains, intolerance, tribal affiliation and corruption in the land that negatively impacted students value for

education and commitment to hard work. The teaching approaches commonly used by Nigeria teachers while teaching civic education has not in any way cultivate the core foundational values of honesty and integrity(Okeahialam 2013).

Studies further established that Instructional aids such as sample copies of the international passports, national identity cards, birth certificates, specimen copies of citizenship registration forms, flash cards depicting pictures on values, videos clips, radio and computers and their accessories are not available for effective teaching and learning of Civic Education at the Senior Basic Education level (Ezegbe, 2009). Computers and its accessories are used to a very low extent when they are available in school. The reason for low utilization of computer in classroom instruction has been associated with school's teachers lack skills in using computer to store, retrieve, assess and transmit information for effective teaching and learning (Ezegbe, 2009). This view is in line with Tuayerinha, (2008) who succinctly stated that Nigeria lacks the human skills and knowledge to fully integrate computer into its education. In the same alignment, Yusuf, Maina and Dare (2013), revealed that most school teachers lack the skills to fully utilize technology in curriculum implementation hence the traditional chalk and duster approach still dominates in school pedagogy. Another reason for low usage of computer in Teaching Civic Education at Senior Basic Education level is that most third world government especially Nigeria pay lip service to computer (Offorma &Ofoefuna, 1998).

2.5. Approaches to Technology Integration

Technology integration is not only when teacher use technology to present content of the instruction. There are diversities of way in which this can be done to enhancing teaching and learning in and outside school setting (Boni, 205). Technology integration approaches before the emergency of TPACK model of technology integrated focused more on availability and utilization of technology. There is less or no

consideration for “students learning needs relative to curriculum-based content (Garba et al, 2013). Technology when is imbedded in the curriculum or instructional plans of teaching is an indicative of integrated technology (TATA Trust, 2013). Technology integration in this manner is not an additional layer in the classroom rather it is embedded within the design of the teacher’s lesson plan and the pedagogy. Following this approach, the teacher designs learning activities and students use technology to construct their own learning. For example, the students use technology for seeking information, construct and organise their learning and represent it through computer applications. Thus, the teacher plays a role of a facilitator and student as a constructionist of his or her own learning (TATA Trust, 2011). Such an approach considers technology as a tool rather than an end itself, defines the teachers’ role as a facilitator and designer of the learning environment, emphasizes the student’s use of technology, and authentic assessments and activities using technology in the classroom (Charania, 2011).

Technology integration should be considered along with issues involved in teaching and learning. Such issues include developing learning objectives, selecting methods of instruction, feedback, evaluation and assessment strategies including follow-up activities. Technology used for teaching and learning should be considered an integral part of instruction and not as an object exclusive to itself. Viewing technology integration from a wide perspective will provide teachers with the necessary foundation to implement technology into the classroom more successfully, (Okojie, Olinzock, & Okojie-Boulder, 2006).

Okojie, Olinzock, and Okojie-Boulder (2006) are of the view that, any approach one may embrace in integrating technology in teaching and learning, it is of paramount for teachers to see technology in education as part of the pedagogical process and understand the pedagogical principles that govern the application of technology into

teaching and learning. Teachers should view technology integration from a wider perspective and be reflective in their teaching as they use technology to support and facilitate instruction. They further established that technology integration should be seen as part of the process of instructional preparation which call for identification of appropriate technology at the planning stage just as the students' readiness is assessed, lesson objectives identified, methods of presenting are established, and evaluation strategies are determined. Follow-up activities should also be established at the planning stage.

On the basis of who use technology in the teaching and learning process, basically, it's of two modes: instructional mode and demonstration mode (Boni, 2015). Teachers make choices about how they implement the use of technology in their classrooms (Boni, 2015). Teachers may incorporate technology into the instruction they deliver during whole class or small group interactions. Instructional use of technology includes showing video clips, using visuals via a document camera, demonstrating a website, modeling use of a digital recorder or e-reader, directing a Skype session, and playing podcasts. In the demonstration mode, students demonstrate what they know and can do. Many teachers think that planning for students to take the lead in using technology and then guiding them seems more difficult than conducting instruction themselves (Boni,2015). In demonstration uses, students actively control the digital tools while teachers guide them (Boni, 2015). Typically, when students manage the tools, teachers may feel as if their classrooms are on the verge of being out of control. A slightly hectic, somewhat noisy atmosphere is a natural positive sign that students are no longer sitting silently, depending completely on the teacher. Instead, they are excited about what they are learning and eager to show the teacher and each other their progress (Boni, 2015). Many excellent teachers feel most comfortable when their classrooms are

quiet, when only one person speaks at a time. If you have hesitated to use tech tools because of this, that's perfectly understandable (Boni, 2015).

'Go at you own Path' is another approach to technology integration, this approaches are most often referring to in the literature as personalized instruction. This approach allows teachers to identify the needs and capabilities of individual learners; providing flexibility in scheduling, assignments, and pacing; and making instruction relevant and meaningful for the individual student (Keefe, 2007). The goal of personalizing instruction usually means rejecting the "one size fits all" model of education and replacing it with customized instruction. The idea of personalized or differentiated instruction is not new (Keefe & Jenkins, 2002); however, the potential for technology to facilitate differentiation is appealing to many educators (Woolfe, 2010). Many factors are required for technology-enabled personalized instruction to become a reality. Access to the mobile devices needed for ubiquitous individualized instruction would need to be more prevalent (Inan & Lowther, 2010; Nagel, 2010). Few of the many existing educational software programs are designed to provide differentiated instruction, monitor student progress, and assess student achievement on a comprehensive set of learning objectives (Fletcher & Lu, 2009;).

On the issues of approaches to technology integration, Puentedura (2006) came with idea of "redefinition" "modification" "augmentation" and "substitution" as the role integrated technology can play in instructional delivery. The first two roles are meant to transform teaching and learning process while last two roles are meant to enhance instructional process. This is further illustrated in the figure 8.

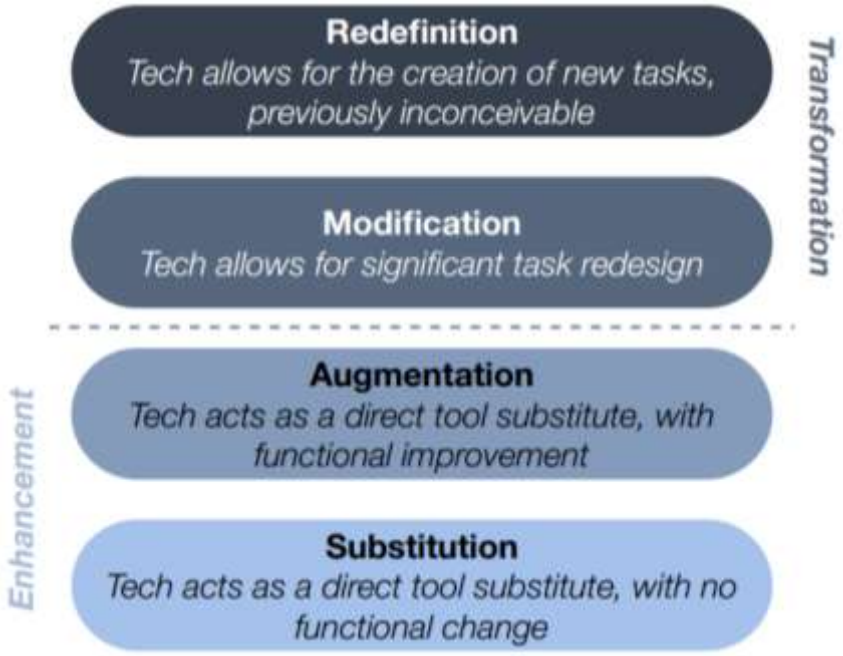


Figure 7: What Technology Does when Integrated

Source: Puentedura (2006)

In line with Okojie, Olinzock, and Okojie-Boulder (2006) and TATA Trust, (2013) on what technology integration implies, a practical approaches of technology integration can be seen in Garba, Singh, Yusuf and Ziden (2013) who used this approach in teaching pre-service teachers. The content to be taught was identified which is "social studies integrated curriculum" the methodology that suited the content of what to be taught was identified, which is "inquiry teaching method" following Giving, Prompting and Making (GPM) model of instruction. The teacher activities were spelt out and the technology to use in carryout this activity was identified, as recommended by the model. The researchers used whiteboard in performing role of "giving" and used PowerPoint and smartboard for the other two group respectively. The essence of this role carried out by the researchers was to give a taught provoking opening charges that will lead the student to another stage of "prompting" where they may likely raise some fundamental question that need further enquiry. In the prompting stage the technology to be integrated were also pointed out; for group one used non-digital technology of textbook, printed materials chart in generating data for analyzing the question raised in giving stage.

Group two and three used web-based resources as planned by the researches to generate data for the questions raised in both giving and prompting state for in-depth analysis. In evaluating the learner achievement, the technology to be used by each group to make and present their findings for further discussion and assessment was spelt out. For group one, they are restricted to whiteboard, chart and picture manipulation, the second group used PowerPoint to present their findings while the third group used smartboard. When technology integration follows this approach according to TATA trust (2013) it is called integrated approach in the sense that technology is not isolated from contents, pedagogy and even evaluation.

The integrated approach of technology integration as demonstrated in the foregone is an uncompromised 21st century learning environment where the learners used technology for learning purposes and it drastically improve their performance, this confirmed Davies and West (2013) assertion that effective and appropriate use of technology does not happen if students do not have access to learning technologies and do not use them for educational purposes. However, pervasive technology use does not always mean that technology is being used effectively or appropriately, nor does pervasive use of technology necessarily lead to increased learning.

In another dimension, TATA Trust (2013) reported Nirmala's integration of technology in the teaching of carbohydrates. The class was divided into three groups. A group of students was busy reading a chapter on carbohydrates from the textbook, and a few in their group were taking notes. Another group was reading and discussing from some 4 to 5 printouts from different websites on the role of carbohydrates in the diet and the recent trends. The third group was at the computer station in the classroom, formatting a spreadsheet that had various columns. The first column had names of the dishes which the group members had over dinner last night, the second column had the

main food ingredients in the dishes and their picture, and the third had its carbohydrate content per 100 grams. They were working on creating a graph in the spreadsheet that would compare the carbohydrate contents of various foods. The teacher went around group by group asking questions like which food has the highest and lowest carbohydrate content, what will happen if you double the amount of potatoes in your diet- in general prompting them towards higher order thinking and structuring their task. This example show that technology is not just integrated in the medium of the instruction but from the planning stage. The teacher selects and applies a variety of applications that best suits the task and the learning process; in this case use of spreadsheet and Internet. Thus, technology is more at a service to the learning process and students facilitated by the teacher play an active role. The example above also emancipated the collaborative learning environment carefully designed and facilitated by the teacher. It is best implemented within the classroom than in the computer labs. Moreover, such an approach brings together technology, subject matter and pedagogy. This approached is rooted in theoretical framework of Technology, Pedagogy, and Content Knowledge (TPACK) model by Kohler and Mishra (2009).

There are diverse views on how to go about integrating technology in teaching and learning process. After a thorough analysis of varieties of ways in which technology is being integrated in teaching and learning, Davies and West (2013) concluded that the primary benefit of current technology use in education has been to increase information access and communication. Students primarily use technology to gather, organize, analyze, and report information, but this has not dramatically improved student performance on standardized tests. The root of this problem could be traced to the manner in which teachers and teacher educators previously perceived technology integration as lamented by Garba, Singh, Yusuf and Ziden (2013). They (teachers and

teacher educators) see technology integration as matter of "availability" and "utilization" of technology, without considering "students learning needs relative to curriculum-based content (Singh, Yusuf, Ziden, 2013). In this approach, 'affordability' and 'constrains' of technologies play the key role in designing and planning technology integration for content-based learning instructions as practiced in schools. Other curriculum components (content and pedagogy) are not given any deserving attention as they deserved, the main focus was to ensure that 'technology' is in the class. This approach is considered as inadequate for effective technology integration in teaching (Singh, Yusuf, Ziden, 2013). This show that there is a lot to be done for peripheral objectives of technology integration (being ICT literate) not to jeopardized the primary aim of technology integration which is improvement of students' achievement.

One of the best ways of overcoming this situation is by providing teachers with increased access to technology along with training in pedagogically sound best practices, including more advanced approaches for technology-based assessment and adaptive instruction (Davies & West, 2013). This scenario has made for example, Palak, and Walls (2009) suggest that "future technology professional development efforts need to focus on integration of technology into curriculum via student-centered pedagogy while attending to multiple contextual conditions under which teacher practice takes place" According to Cennamo, Ross, and Ertmer (2010), to achieve technology integration that targets student learning, teachers need to identify which technologies support specific curricular goals. Doing so would require understanding the technological tools themselves, as well as the specific affordances of each tool that would enable students to learn difficult concepts more readily, hopefully resulting in greater and more meaningful student outcomes.

2.6. Technology Integration and Students' Academic Performance

Technology integration in the classroom has become an important aspect of successful teaching. It has triggered many researchers to investigate different aspects of such integration (Anderson & Maninger, 2007; Wood & Ashfield, 2008). This is because it allows students to learn more in less time and allows schools to focus on global learning environments if used appropriately. In addition, it could be an effective teaching tool when used to engage all students in the learning process (Almekhlafi, & Almeqdadi, 2010). The discussion over whether to incorporate technology into schools is being replaced with a need to explore and discover the best technology programs that generate the most effective results.

Studies previously carried out in examining the relationship between technology integration and students' academic performance is not directly on civic education but on social studies where the present civic education lifted majority of its curriculum contents (Garba, Singh, Yusuf & Ziden, 2013). That is to say, the findings on technology integration in social studies and students' academic performance can also give an insight on what will be the effect of technology integration on students' performance in civic education. Technology integration in civic education instructions is found to facilitate and motivate learners' active involvement in the exploration of information that can be applied in solving real life problems (Garba, Singh, Yusuf & Ziden, 2013). As such, documented and programmed civic education instructions through the use of ICT would assist the learner in his learning process (Garba, Singh, Yusuf & Ziden, 2013). Relevant information, ideas, knowledge, learning experiences and thought provoking drills are disseminated for learners' consultation through the use of computer and the internet (Garba, Singh, Yusuf & Ziden, 2013). Use of ICT as instructional materials in civic education facilitates students' achievement, creativity, and the development of higher order thinking. This is because ICT as instructionalmaterial uses combination of text,

sound videos that attract, engage and retain students' interest in learning (Mezieobi, Fubara&Mezieobi, 2008).

Offorma (2006) reported that the use of computer, internet, the smart board, web resources supports and enhance the teaching and learning. Since civic education just like any others subjects in Nigeria school expose learner to immediate and distance social events in the social environment, the integration of ICT would help to concretized learning, motivates students' interest, and provide easy access to wide range of content materials that can improve instructions in the subject area (Mezieobi, Fubara &Mezieobi, 2008). ICT provoke intense learning and sharpens learners' intellectual powers and their reflective thinking; and active learning situation is one of the noble objectives of instructions in civic education (Okam, 2002). The citizenship education content that was lifted from social studies curriculum to become an independents subject in Nigeria secondary school is meant to transform the school child into becoming a responsible citizen capable of contributing to the socio-economic and political development of his immediate environment and beyond (Mezieobi, Fubara &Mezieobi, 2008; Okam 2002). ICT integration can facilitate the attainment of this goal because ICT provide wide learning experiences which unifies knowledge in a manner to develop the individual in private, academic, public and business life (Mezieobi, Fubara &Mezieobi, 2008).From all indicators, technology integration is not a new trend in Nigeria schools inferring from advantages and potentialities attributed to technology integration in teaching and learning by Nigerian teachers and teachers' educator.This connote that technology integration in civic education is not a new trend in Nigeria school but integration of technologies that are incompliance with learning preference of 21st century learners.

2.6.1. Integration of Linear PowerPoint and students' Academic Performance

Humans brain has capacity of processing information coming from auditory stimulus and visual stimulus at the same time (Mayer& Moreno, 2003). PowerPoint is a computer application that has become a presentation staple in lecture halls, conference rooms, and through the application of computer-based training. As at 2005, it is used in over 30 million presentations a day, and its software is on 250 million computers world-wide (Alley & Neeley, 2005). PowerPoint slides are the grate visual presentation tools which comprise various multimedia formats such as text, chart, graph, sound and video. According to Craig and Amernic (2006), PowerPoint is recognized as a communication medium that is fundamentally changing the nature and dynamics of how teaching is carried out. PowerPoint presentation creates more powerful sensory alerts when compared with traditional education materials (blackboard, overhead projection among others). While delivering the lesson through PowerPoint presentation, the content of the lesson stays the same, but the form of transmitting the lesson to the students' changes.

Ever since the technology finds its ways into educational practice, there has been steadying study on what roles does it play in students' academic achievement. Overall, research indicates that students prefer PowerPoint-type presentations to traditional lectures (Gok & Sılay, 2008; Susskind, 2005). Unfortunately, information on whether computer presentations improve student performance is much less clear (Erdemir, 2011). Study show that PowerPoint inhibits the presenter-audience interaction (Driessnack, 2005), limits the amount of detail that can be presented and reduces a presentation's analytical quality (Erdemir, 2011). On the other hand, supporters claim that PowerPoint content when projected for teaching it improves learning (Gambari, Yusuf, & Balogun, 2015), invokes audience interest (Gambari, 2017), and aids explanations of complex illustrations (Apperson, Laws, & Scepansky, 2006). Furthermore, PowerPoint is found to be very effective as it enables students to learn, interpret the information, and retain the

knowledge for a long time (Erdemir, 2009; Savoy, Proctor & Salvendy, 2009; Wofford, 2009). It worth to note that the findings of these scholars is based of linear PowerPoint Integration not interactive PowerPoint.

The foregone reviewed on linear PowerPoint integration in teaching and learning showsthat PowerPoint presentation hadeducational implication on both affective and cognitive domains. This format of PowerPoint presentation is said to be very effective in enhancing learning and improving performance. students interest is also invoked by the multimedia content of PowerPoint presentation. The manner in which PowerPoint (linear PowerPoint) is used in an instruction determine to the large extent its effectiveness in achieving learning objectives inferring from disadvantages attributed to PowerPoint Presentation. The user that concentrate only on attractiveness without corresponding oral interpretation or explanation of PowerPoint slide may not easily achieve learning objectives but only entertain students. The foregone 'pros and cons' associated with PowerPoint integration is in line with Erdemir (2011) who asserted that there is no software that is omnipotent of itself and PowerPoint is no exception. It's also important to note that the foregone 'pros and cons' is basically for linear format of PowerPoint not Interactive PowerPoint. The weakness of the former is the strength of the latter.

2.6.2. Integration of Interactive Power Point and students' Academic Performance

It is well known that the traditional way of teaching discourages active learning, and the slide presentation simply enlarges the passive nature of the instruction. From the viewpoint of learning, it is easy to capture the learners' attention but to maintain via linear PowerPoint presentation which has no feature of interactivity will be a difficult task (Chen, 2012). Teaching with traditional PowerPoint mode is often leads to a weak analysis of the learning content (Gabriel, 2008).

The limitation of linear PowerPoint mode is the strength of the new approach to the use of PowerPoint for instruction popularly known as “interactive PowerPoint.” The linear format of PowerPoint presentation does not easily lend itself to active teaching techniques. Incorporating hyperlinks into a presentation turns a linear presentation into a web-like presentation that allows for students to become active participants in the learning process by making choices about the direction and depth of the lecture (Marcovitz,2012). One of the most powerful features of PowerPoint is the ability to easily add interactivity without complicated programming (Lane and Kosslyn, 2011). Using interactive learning environment such as computer simulations and tutorial instruction to teach abstract topics enables students to become active learners. It also provides opportunities for students to construct and understand difficult concepts more easily (Gambari, Yaki, Gana & Ughovwa, 2014). Effiong and Ekpo (2016) are of the opinion that effective teaching can be achieved through higherinteractive technologies like Microsoft PowerPoint. PowerPoint features such as trigger, hyperlink, action-button, custom show, browse at a kiosk among others that made this technology a powerful for designing an interactive learning environment.

2.7. PedagogyandTechnologyIntegration

Teacher’s pedagogy covers conscious activity of teachers designed/planned to enhance learning in another’ (Watkins & Mortimore, 1999). The teacher personality, experience, knowledge, subject culture, the age and ability of their children, the ethos of their school, national policies, curriculum specifications, and the resources available to them all influence teacher’s pedagogy. Technology integration,therefore,become useful when thoughtful consideration is giving to the components of what is regarded as teaching.

Teaching is a complex intellectual process involving the application of learning theories, design principles, communication channels, and decision-making processes to solve ill-structured problems. Technology integration into this processes is more about teachers' effective use of it. Effective integration of technology is the result of many factors, but the most important factor is the teacher's competence and ability to share instructional technology activities to meet students' needs (Gorder, 2008). When teachers understand the role of learning theory in the design and function of class activities and in the selection and use of instructional technologies there is assurance that technology will serve it pedagogical purposes. Technology integration involves understanding and negotiating the relationshipsbetween content, technology and pedagogy and the subsequent interplay made between these three components of knowledge to make PCK, TPK, TCK and Technological Pedagogical Content Knowledge (TPCK) (Mishra & Koehler &2006).Koehler and Mishra(2008) opined that increasing the amount of technology in the classroom was not sufficientto change teachers' technology practices without a shift in the teachers' pedagogical practices.

2.8. Review of Empirical Studies

This section review empirical studies related to civic education implementation in Nigeria, innovative integration of digital technology in learning and the efficacy on learning outcome, and studies on barriers that hinders effective digital technology integrations.

Empirical studies on Implementation of civic Education Curriculum in Nigeria

Ezegbe, Oyeoku, Mezioviand Okeke (2012) carried out a study title on Civic Education at the Senior Basic Education in Nigeria: Issues and Challenges. The study was guided by three research questions. The study was carried out in the capital cities of Anambra and Enugu states of Nigeria. The study used principals and teachers in selected

secondary schools in both capital cities was used for the study. Purposive random sampling technique was used. Questionnaire instrument which is titled Universal Basic Civic Education Questionnaire (UBCEQ) was developed. Data were analyzed using simple percentage and mean. The result of the study reveals among others, teachers have poor attitudes towards the implementation of Civic Education at the Senior Basic Education level and that instructional materials for the effective teaching of Civic Education at senior Basic Education level are not available. The study share similarity with the present study as both focus on civic education curriculum implementation though the former is a descriptive survey the present study is a quasi-experimental design primarily focus on effects of two modes of PowerPoint on students learning outcome.

Okeahialam (2013)analyzed effectiveness of secondary school civic education on the attainment of national objectives in Nigeria. The study aimed at measuring the effectiveness of secondary school civic education. The Federal Capital Territory Abuja was chosen as the place of study due to its rich demographic variables. The participants covered six different segments of stakeholders who were interviewed for analysis and results. The examination results in civic education at the end of the nine years of "Universal Basic Education" (UBE) programme and the crime data of secondary school age students were also examined for enhanced credibility. The latter served as indicators of students' understanding of the content of civic education and the demand for effective citizenship respectively. Since civic education was introduced into the UBE programme to shore-up dwindling national objectives through education. The findings showed that ingrained ethnic consciousness in the community, bad leadership, distorted value outlook, and get-rich-quick syndrome diminished the effectiveness of secondary school civic education in the quest for the actualization of national objectives. The previous study used qualitative approach via conduct of interview and content analysis of

documents related to civic education curriculum implementation. The previous study is an eyes opener to the present study present because it presents the reality of civic education application in the larger society which is said to be poor, this motivate the researcher for further investigation into manners in which this digital technology can be used to enhance application of civic education knowledge in the larger society. The study differs because the formers is a pure qualitative while the present is pure quantitative study.

Idowu (2015) conducted a research on the implementation of the Nigerian Civic Education Curriculum to develop Effective Citizenship in Young Learners: Stakeholders Perspectives. The study appraises the effective implementation of the school civic curriculum at the basic and senior secondary levels in Lagos and Ogun states, in the south-western geo-political zone of Nigeria. Three sets of stakeholders who are key civic curriculum implementers were selected as participants: teacher educators at colleges and universities and civic teachers and students at basic and senior secondary levels. Open and closed questionnaires and focus group discussion were administered on these participants. The study showed that classroom civic curriculum implementation focused more on learners' knowledge constructions with less emphasis on developing skills and dispositions due to inadequate school extracurricular programmes. In line with the objectives, teachers focus more on political knowledge at the expense of nongovernmental (apolitical) issues. The above findings were due to the inadequate recruitment of civic teachers leading to personnel improvisation which entailed seconding teachers lacking civic content knowledge and pedagogical skills to teach the subject. Also, the study showed eclectic pedagogical classroom practices whereby teachers mixed active (learner-based) pedagogies with didactic (teacher-based) teaching style to implement classroom civic education. The study also found that focus on

knowledge construction and teacher centred pedagogies reflected inadequate and/or irregular training which resulted in civic teachers' self-empowerment to improve their content knowledge and teaching skills. Teachers lacked mediation tools like textbooks and other teaching aids to properly implement civic content in the classroom.

Ali, Hayatu and Badau (2015) assessed the implementation of civic Education in secondary Schools in Adamawa State, Nigeria. The study examined the implementation of civic education in secondary schools in Adamawa State. Two research questions guided the study. The study adapted a descriptive survey research design. The population of the study consist of all teachers and students of SS2 students offering civic education in Adamawa State. Participants were dawn using random sampling technique. The instrument for the data collection was a structured questionnaire using Likert scale format. Data collected was analyzed using descriptive statistics. The result indicated that secondary schools in Adamawa state has implemented civic education and there was no enough and qualified civic education teachers among others. Based on the result, it was recommended that in-service training should be given to civic education teachers so as to obtain qualified and skilled personnel for teaching civic education in the state. This study also attested to the fact that there are implementation lapses bedeviling civic education curriculum which the study found from the perspective of inadequate qualified civic education teachers. This study is similar to present study as both focus on implementation of civic education in Nigeria school. Though, the former study opening the eyes of the present to the need for integrating available digital technology in civic education curriculum implantation process.

Empirical studies on Innovative Integration of Digital Technology in Learning

Bahadur and Boodun (2013) conducted a study on using PowerPoint presentations as a tool for effective teaching and learning of water science for upper

primary pupils in Mauritius. The design and development of a simple educational tool, based on the topic ‘water,’. Microsoft PowerPoint presentation was used and different multimedia,supported with texts and interactive activities, were integrated to create a dynamicand user friendly learning environment. The students of upper primary school used the package. The study evaluated student performance students through a quiz competition. The study found that Students were able to learn and understand the different concepts related to water. The study also established that the performance of students is not bias of learning abilityas all students exposed to the educational tool irrespective of learning ability showed enhanced self-confidence, increasinglevels of spoken communication, cooperation and shared leadership role more frequently anddeveloped a positive attitude towards learning as compared to pupils taught using traditional. The teachers interviewed by the researchers believed that Microsoft PowerPoint could easily be used to develop interesting and interactive learning tools by any teachers to make teaching and learningmore effective and break the monotony and passivity of traditional classes. This study is similar to the present study as both focus on crating interactive learning environment using interactive features of PowerPoint. The present study is different from previous study in terms of topic, the mode of interactive PowerPoint and the role of teachers who are to facilitate the usage of the package.

Ibrahim and Hmaid (2017) investigated the effect of teaching mathematics using interactive video games on the fifth grade students' achievement. This study was conducted in one basic private school inJordan. The used a quasi- experimental control group design. Interactivevideo games software was developed to investigate the differencebetween the two groups that were given a pre-test and a post-test tomeasure their achievements in math. The results of the study showed thatthe learning environment in math using interactive video games have apositive effect on fifth grade students' math

achievements. The studyshowed a progress on the part of the experimental group which usedinteractive video games software. It was reflected positively in the fifthgrade students' achievement in math. This study is similar to the present study as both interested in the best ways of integrating digital technology to have a positive effect in student's achievement and development of positive attitude toward the subject being taught. Though the previous study use mathematics as subject of instruction why the present study used civic education. The previous study is pure game-based learning while in the present study game-based learning is a component of the instructional package for civic education.

A mixed method study by Ke (2008) applied qualitative and quantitative methods to evaluate the effect of the educational use of video games in a summer school math class on student achievement and attitudes toward math. Fifty and fourth grade students participated in the study over a five-week period, meeting two times each week for a two-hour period of time. Quantitative data was collected through a math attitude inventory and a math test given before and after the study. Qualitative data was collected through observations, student think-aloud, and document analysis of student time on task. Quantitative results from this study showed the use of gaming increased positive attitudes toward math, however, it showed no correlation to improved student achievement. Qualitative results from this study showed student engagement was diminished when the game was too difficult, too easy, or required the students to leave the game play for the math content of the game. When math learning was embedded in game play, researchers noted increased student effort and engagement. Even though there were several limitations to this study: small sampling, short period of time, conducted during summer school, and students from one school; it is important to note the increase in positive attitudes toward math. This study is similar to the present study

as both interested best ways of integrating digital technology to have a positive effect in student's achievement and development of positive attitude toward the subject being taught. Though, the previous study use mathematics as subject of instruction why the present study used civic education. The previous study is pure game-based learning while in the present study, gaming activitiesis a component of the instructional package for civic education.

Giannakos' (2013) carried out a two-part study of 13 year-old students took place over a four-week period. The first part of the study examined students' performance in traditional learning compared to game-based learning. The second part of the study examined how 46 students' attitudes impact performance. In each study students were assigned to groups based on a pre-test to form similar achieving groups. Groups were assigned to the experimental group using game-based instruction or control group using traditional instruction. Quantitative data was collected through surveys completed bystudents and qualitative data was collected through researcher observations to determine the effect of game-based learning on student enjoyment and achievement. Researchers found a strong correlation between student attitudes, enjoyment, and game-based instruction. The study exploits a component of the present study: interactive PowerPoint with game. It also examines how game-based instruction package can influence attitude of learners. In the present study game-based is a component of interactive PowerPoint which has other component, therefore its effect of the package that was examined on students.

Pratama and Setyaningrum (2018) carried out a study on the effect of Game-Based on student cognitive and affective behaviours. The study investigated the effect of game-based learning that developed based onproblem-solving method, on students cognitive and affective aspects. Ninety-six students ofgrade eightfrom Indonesian school

were randomly selected toparticipated in this study. Performance on cognitive and affective were measured using test and questionnaire. The data were analyzed by using qualitative and quantitative methods. Resultsindicated that students who were exposed to the game-based learning within problem-solvingmethod, obtain positive effect on cognitive and affective aspects. This study is similar to present study as both focus on how interactivity with digital information system via gaming activates can affects students learning outcome in cognitive and affective. However, the present study exploits this effects using three mode of technology integration Interactive PowerPoint (Game-based Interactive PowerPoint), Linear PowerPoint and Non-digital technology of chalkboard.

Gambari, Yusuf and Thomas (2015) assessed the effects of computer-assisted STAD, LTM and ICI cooperative learning strategies on Nigerian secondary school students' achievement, gender and motivation in physics. The study examined the effectiveness of computer-assisted instruction on Student Team Achievement Division (STAD) and Learning Together (LT) cooperative learning strategies on Nigerian secondary students' achievement and motivation in physics. The effectiveness of computer assisted instructional package (CAI) for teaching physics concepts in cooperative settings was determined using Pretest-Posttest Experimental group design. The reliability coefficient of the research instruments wasstablished using Kuder-Richardson KR-20 and 21 respectively. Some 90 (45 males and 45 female) students from three secondary schools in Minna, Nigeria made-up the sample. The schools were randomly assigned to experimental group I (STAD), experimental group II (LTM) and control group (Individualized Computer Instruction, ICI). Results revealed that the students taught with STAD and LTM performed significantly better than their counterparts taught using individualized computer instruction (ICI). The cooperative

learning strategies were found to be gender friendly. Based on the findings, physics teachers should be encouraged to use computer assisted STAD cooperative teaching strategy to enhance students' academic achievement, retention and motivation in physics. The present study and the previous study shared some commonality; the two study use computer to present learning content to learner, cooperative learning approach was also used by the two study, targeted population for the two study are senior secondary school students in Nigeria. The previous study used physics as experimental subject while the present study used civic education.

Falode, Ojoye, Ilobeneke, Falode (2016) conducted a research on effectiveness of interactive hypermedia instructions when used alone and when combined with lecture method on secondary school students' achievement and interest towards physics in Minna, Nigeria This study was therefore carried out to examine the effectiveness of interactive hypermedia instructions when used alone and when combined with lecture method on secondary school physics students' achievement and interest in Minna, Nigeria. A pretest, posttest quazi-experimental design was employed. Two research questions were raised to guide the study and two hypotheses were tested. The study purposively selected an intact class from three co-educational secondary schools and randomly assigned to Experimental Group I (exposed to hypermedia instruction only), Experimental Group II (exposed to hypermedia & lecture method) and Control Group (taught through lecture method only) were employed for this study. Physics Achievement Test (PAT) and Physics Interest Inventory (PII) were used for data collection. Both PAT and PII were validated by experts and acceptable reliability coefficients was established using Kuder-Richardson (Kr-21) and Cronbach Alpha's formula. Data gathered were analyzed using Mean, Standard Deviation and Analysis of Covariance and significance. Findings revealed that significant difference exists in the

mean achievement scores of students exposed to hypermedia instructions only, hypermedia with lecture method, and lecture method only. It was, therefore, recommended among others that hypermedia instructions should be used to supplement conventional lecture method of teaching to improve students' achievement and interest towards physics. The study is similar to the present study as both use computer to implement senior secondary school curriculum and the package for interactive group is of hypermedia media in nature as different media are hyperlinked. Both study explore additional learning out while the previous study exploit interest toward physics the present study exploit attitude toward learning civic education. The location of both study is Nigeria, and northern Nigeria in particular but subject of interest differ.

Adeniran, Laolu, and Ayotola (2016) conducted a study titled: The effect of Web-quest on civic education of junior Secondary school students in Nigeria. The study developed, integrate web-based interactive package and examine the effects of the package on achievement in Civic Education of Junior Secondary School (JSS) students in Nigeria. The study is of two phases. The first phase involved design and development of the webquest package. During this phase, a webquest design model that was developed by Dodge (1995) was used in the design and development of Webquests on Citizenship Education and Our Values in Civic Education while the second phase adopted a quasi-experimental design: the pre-test, posttest, non-equivalent, non-randomized and control group design. Civic Education students were drawn from two selected schools within Nigeria. The instrument used for the study was Civic Education Performance Test (CEPT) with reliability coefficient of 0.82. One hypothesis was tested using two-way ANCOVA. The results revealed that the webquest package had a significant positive effect on students' achievement in civic education as the students performed better in the subject following their exposure to the webquest package.

Therefore, teachers should be encouraged to develop the use of WebQuest for teaching and learning. The study is similar to the present study though the integrated technology differs both used digital technology. furthermore, the previous study is limited to measuring of immediate academic performance of students in civic not actually application nor students interest in civic education. The present study also differs by extending its scope to unleash factors that may hinder effective integration the integrated digital technology if found effective.

Effiong and Ekpo (2016) investigated the interactive effect of PowerPoint instructional package on academic performance of educational technology students in the University of Calabar. The specific objective is to examine how the use of PowerPoint instructional package affect students' academic performance in Educational Technology. In line with this objective; one research question was raised and one null hypothesis was formulated to guide the study. The study employed the pre-test – post-test non-randomized control group design to select Educational Technology students. Educational Technology Performance Test (ETPT) was the instrument used for data collection and acceptable reliability index was reported. The data from the generated were analyzed using analysis of covariance. The finding of the study revealed that there was a significant difference between the performance of students taught Educational Technology using Interactive PowerPoint instructional package and those taught using the conventional expository method, in favour of those taught using PowerPoint instructional package. Based on the finding, it was recommended that PowerPoint instructional package should be used as an instructional tool to enhance students' academic performance in Educational Technology in the University of Calabar. This study shares a commonality with the present study as both used PowerPoint to design an interactive instruction in others to established effect of it on students' academic

performance. The previous study used university students while the present study used secondary school students more so, the present study is not limited to only academic performance it also examines the effects such interactive instruction will have on students' attitude toward civic education as a subject. furthermore, the present study used three treatments (Linear PowerPoint, Interactive PowerPoint and Non-digital technology) while the previous study only used Interactive PowerPoint and Expository teaching method without integrating any technology.

Carter, Greenberg and Walker (2016) conducted a study on the impact of computer usage on academic performance: Evidence from a randomized trial at the United States Military Academy. With objective of measuring academic performance of three categories of students expose to different form of integrating computer system into learning. To test the impact of allowing Internet-enabled laptops and tablets in classrooms, the study used quasi-experimental design. The study randomized classrooms into control group classroom who were "technology-free," and treatment groups, students who were permitted to use lap-tops and/or tablets during class for the purposes of note-taking and classroom participation (e.g., using the "e-text" version of the course textbook) and the students that are permitted to use their tablet computers, but professors in this group required tablets to remain flat on the desk (i.e., with the screen facing up and parallel to the desk surface). The sample of the study consists of students enrolled in West Point's Principles of Economics course. The instrument used for data collection is standardized test which was prepare by institution examination body. The results of the study suggest that permitting computing devices in the classroom reduces final exam scores by 0.18 standard deviations. The results also indicated that the negative impact of computers occurs in classrooms that permit laptops and tablets without restriction than in classrooms that only permit modified tablet usage. This study is relevant to the present

study because it gives an insight into kind of control that students need while using interactive PowerPoint package design for this study so that computer will not be a distracter to them. The similarity between the two studies is the integration of computer system into teaching and learning process and what implication such integration may have on students' academic performance. Both use quasi experimental design but the previous study had two treatment group while the present only have three treatment group. The present study used a specific computer application program (PowerPoint) while the previous study focused on integration of computer as a whole in teaching and learning.

Liu and Chen (2014) conducted a study on the educational benefit of Game based learning to help elementary school studentlearn science-related concepts by participating in an educational card game, named Conveyance Go. The researchers investigated the perceptions of students regarding the integration of the game into science learning aswell as the educational benefits of the game with regard to learning performance. A one-group pretest posttest design was used with eighteen 5th grade students from a single elementary school in northernTaiwan. The students demonstrated positive attitudes toward the use of the educational card game in science learning. The study also found that card game improved students' scientific knowledge of transport and energy. The study is similar to the present study has both aimed at using computer related education activities to improve students learning outcome. The present study used game as component of the instructional package for learning civic education. the subject of interest and the study location of the two study differs.

Gambari, Gbodi, Olakanmi, Abalaka (2016) examined the role of computer-assisted instruction in promoting intrinsic and extrinsic motivationamong Nigerian secondary school chemistry students. Theresearchers employed two modes of computer-

assisted instruction (computer simulationinstruction and computer tutorial instructional packages) and two levels of gender (male andfemale) using pretest-posttest experimental group design. Senior secondary one (SS1) students from three secondary schools in Minna, Nigeria, made upthe sample. The schools were purposively sampled and randomly assigned to experimentaland control groups. The Experimental Group I was taught two selected concepts of chemistryusing computer simulation instructional package (CSIP), Experimental Group II was exposed tocomputer tutorial Instructional package (CTIP) while conventional teaching method (CTM)was used for the Control Group. Validated Chemistry Achievement Test (CAT) and ChemistryMotivation Questionnaire (CMQ) with reliability coefficient of 0.89 and 0.94 respectively wereused for data collection. Classroom observations as well as interview schedules were alsoconducted. Data from CAT and CTM were analyzed using One-way ANOVA and Scheffe's posthoc test, while the data from the classroom observations and interview schedules werethematically analyzed. The outcome the study revealed that students taught with CSIPperformed better than those in CTIP and CTM groups. The CSIP and CTIP were found also tobe gender friendly. Moreover, students taught with CSIP had higher intrinsic and extrinsicmotivation than their counterparts in CTIP and CTM respectively. Based on the findings, it wasrecommended that chemistry teachers should employ computer simulation for improvingtheir students' performance and motivation in the subject. The present study and the previous study are similar to some extent. Both are interested in CAI package capable of enhancing affective and cognitive learning outcome. The present study combined simulation and tutorial as package while the previous study examined the separately. Furthermore, the subject of instruction is chemistry for the previous study why the present study used civic education.

Summary

Technology integration serves immediate and lifelong purposes,the immediate purpose connotes using technology as a tools for facilitating teaching and learning process while lifelong aspect deal with the development of 21st century skills for surviving Digital age. When appropriate technology is integrated in teaching and learning it improve students' performance beyond traditional approaches. Affective learning outcome is best achieved when students actively involved in knowledge construction. There are diverse ways of integrating digital technologies in teaching and learning in order to engage learner in knowledge construction but not all technology can do that. Interactive digital technology reported to be effective in engaging students and improving their performance.

In Nigeria schools, interactive PowerPoint is not being integrated in the teaching of civic education. Justification for non-integration of digital technology are factors such as none-availability and inadequate skills.Linear Format of PowerPoint has been integrated in teaching and learning in Nigeria high institution of learning and rarely used in secondary schools for curriculum implementation.Although, their integration is said to be extension of passive learning that lecture method supported.Interactive PowerPoint is said to be an emerging innovative approaches of creating a virtual learning context where learner can actively engage in knowledge construction.

The need for evidence based conviction that available digital technology in school such as computer when innovatively used is capable of enhancing teaching and learning process than non-digital technology has not been seen as a problem. To the best of researchers' knowledge, none of the previous studies see the problem of teachers' loyalty to the use of non-digital technologyfrom none-availability of ready-to-use digital instructional packages.There is relatively scarce study on how Interactive features of PowerPoint (one of the readily available digital technology application in schools) can be

innovatively integrated in teaching and learning of civic education that will yield a convincible learning in compliance with 21st centurypedagogy. Bridging these gap and call for this study.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the methodology adopted by the researcher to realize objectives of the present research. The details of research design, population, sample, instrument used in data collection, the data collection procedure and method used for analysis of data were discussed.

3.2. Research Design

The study used quasi-experimental design. Specifically, pretest-posttest, non-equivalent, nonrandomized, comparison groups design was used. The difficulties of randomizing the subjects (a class of civic education students), the need for comparison (different modes of technology integration), impossibilities of studying the subjects individually (generalization) warrant the use of Quasi-experimental design for this study.Quasi-experimental designs are research studies in which participants are selected for different conditions from pre-existing group who are of similar baseline and they are not created through manipulation of the researcher (White & Sabarwal, 2014). The study had three treatment groups, each group received one technology integration mode in civic education. The researcher is aware that the design is more sensitive to internal validity problems due to interaction between such factors as selection and maturation, selection and history, and selection and pretesting, but this was statistically controlled (Dada, 2016; Yusuf, 2015). The detail of the design is shown figure 8.

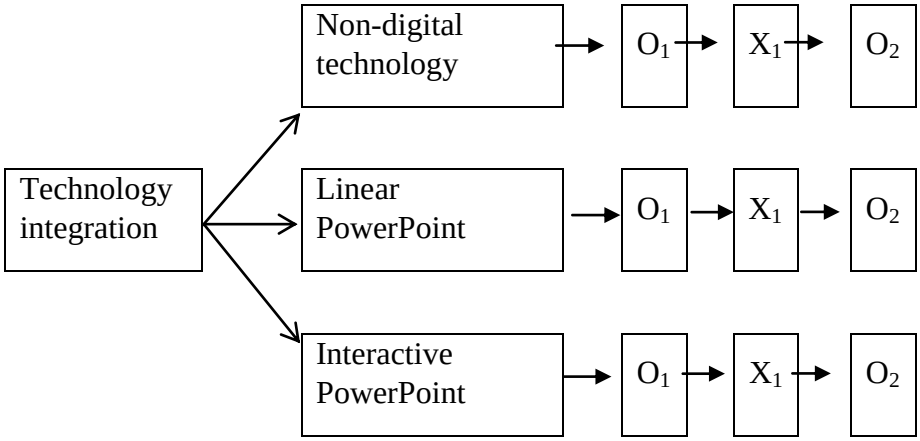


Figure 8: Research Design

X_1 Treatment

O_1: Pre-test

O_2 Post-Test

3.3. Population of the Study

The population for this study comprised all the students of39Public Senior Secondary School in Zaria Education Zone, Kaduna State, Nigeria with a total population of 56415students. Zaria Quality Assurance Division (Zaria Education zone) is one of the twelve education zones in Kaduna state. The zone has 39 secondary schools that are categorized into three: the rearticulated Public Secondary schools (combination of Senior and Junior under the authority of one Principal), the Public Senior Secondary schools and the public junior secondary schools. These schools cut-across five Local Government Areas of Kaduna State which include Zaria, Sabon-Gari, Soba, some part of Kudan and Giwa local government areas of Kaduna State, (Office of Director, Zaria Education Zone-2019.). This study focus only on Public Senior Secondary Schools irrespective of been a rearticulated or non-rearticulated public senior secondary schools. The targeted population therefore, is Senior Secondary II students. The details of the population is presented in Table 1 (see appendix vi for more details).

Table 1: Population ofthe Study

S/N	Senior Secondary Schools	Student Enrolment
1.	Alhudahuda College	3845
2.	Barewa College	2076
3.	Govt. Comm. College	484
4.	Gss Awai	399
5.	Gss T/Saibu (Snr.)	411
6.	Gss Gyallesu	2069
7.	Ggs D/Bauchi (Snr.)	1537
8.	Gss Likoro	872
9.	Ggss K/Gayan	4546
10.	Gss K/Bizo	3028
11.	Ggss Pada	1640
12.	Gss Danen Abba	340
13.	Gss Gimba	723
14.	Gss Mangi	82
15.	Gss Richifa	583
16.	Gss Chindit (Snr.)	740
17.	Gss Zaria (Snr)	679
18.	Gss (Wtc) Zaria	1705
19.	Gss Amina (Snr)	734
20.	Gss T/Wada	2544
21.	Gss Kaura	1129
22.	Ggss Pada (Snr)	1422
23.	Sasss K/Karau A.	438
24.	Gss Magajiya (Snr)	870
25.	Ssc Kufena	1274
26.	Gss Kugi	1558
27.	Gss Yakosai	497
28.	Gss K/Kuyanbana	3391
29.	Gss Dakace	1730
30.	Gss Bogari	827
31.	Gss Chika'	2271
32.	Gss R/Doko	3080
33.	Sasss K/Karau B	3178
34.	Ggss Chindit (Snr)	709
35.	Gss K/Doka	2610
36.	Gss Dinya	556
37.	Gss Muchia (Snr)	1226
38.	Gss Matari	208
39.	Gss Kinkiba	564
TOTAL		56485

Sources: Ministry of Education, Science and Technology Kaduna, Zonal Education Office: Student Population by school, Year Group & Sex 2018/2019

3.4 Sample and Sampling Technique

The sample size for this study was204 SSII students. This size comprised of three intact classes of SSII ‘A’ students from three sampled Senior Secondary school in Zaria education zone. The school “A” is having an intact class of 66 SSII students (stream “A”), School “B” is havingan intact class of74 SSII students (Stream “A”), and the school “C” is having an intact class of64 SSII students (Stream “A”).

The study used purposive sampling technique. At school level, three Senior Secondary schools in Zaria education zone were sampled purposively on meeting up with criterions considered for this study:Having functional computer classroom/lab that can served an intact class when grouped into groups of 5-6 members, students have been taught computer science both theory and practical in the previous classes (at least 2 consecutive session oflearning computer science as a subject) and Located in one of the three major local government of Zaria Education Zone. Purposive sampling technique is a strategy in which particular settings, persons or events are selected deliberately in order to provide important information that cannot be obtained from other choices (Creswell, 2009). It is where the researcher includes cases or participants in the sample because they believe that they warrant inclusion (Taherdoost, 2016).

At class level, an intact class of SSII “A” was sampled purposively.The choice of stream “A” was to ensurehomogeneity of participant. As it is being practiced in Zaria education zone, SSII “A” and “B” are Science Students while others streams could either be Arts or Commercial. The subject combinations of art and science students differs. The art students have subjects similar to civic education (Government and History) which science students don’t offer. To take care of this disparity, the study used science students of stream “A” from each of the sampled schools. This is further illustrated in Table 2.

Table 2: Sampled Population

School	No. SSII A Students	Treatment
A	66	Linear PowerPoint
B	74	Non-digital technology
C	64	Interactive PowerPoint
Total	**204**	**3**

The justification for sampled SSII students was based on the fact that the National curriculum for secondary school (Federal Ministry of Education, 2009) provides that the aspect of senior secondary school civic education upon which the treatment was based be taught at the second year of senior secondary. Furthermore, that the proposed students have been exposed to the teaching of the SSCE civic education syllabus and are not pre-occupied with any major examination and they are expected to have been exposed to some pre-requisite of civic education concepts at SSI level.

3.5. Instrumentation

This sections discussed the instruments that were used for data collections. The nature of the instruments and justification for using them were discussed. The study used four instruments namely:Civic Education Performance Test (CEPT),Civic Education Students Attitudinal Scale (CESAS), Linear PowerPointInstructional Packages, Interactive PowerPoint Instructional Package and Non-Digital Technology Instructional Package.

The CEPTconsisted of30 multiple choice questions adopted from past examination questions of West African Examination Council (WAEC) and National Examination Council (NECO). CEPTwas based on SSII curriculum on the concept of (i) National Integration (ii) National Development (iii) Political Apathy.These chosen topics were selected from the senior secondary two (SSII)civic education syllabuses and

scheme of work and correspond to what the studentsshould be taught in their schools at the time of the study. Each item of theinstrument was a multiple choice question with four options (A-D) as possibleanswers to the question. The students were made to respond to the instrument in two sections. Thefirst part (section A) elicited information on the students' personal data (gender, school name and class registration number), whilesection B contains 30 objectives question on what students have been taught in the course of this study. Onthe scoring of the multiple choice items, two (2) marks wereawarded for eachcorrect answer and zero (0) mark for each wrong answer. The instrument will bescored over 60 (2x30 items). For the sake of pretest, the original CEPTitems was reshuffled. The words of the questions were also reworded but still depicting the same meaning. This is done to avoid familiarity with the original CEPT instrument.

Civic Education Students Attitudinal Scale (CESAS) is an 18 itemsquestionnaire (adapted) from "A Biology Attitude Scale by Russell and Hollander (1975) which has reliability index of 0.8 and an instrument to measure mathematics Attitudes by Marshto (2004) which has reliability index of0.7. CESAS is made up of 4 constructs: self-confidence; value ofcivic education; enjoyment ofcivic education; and motivation. The need for combining two instructions is due to the nature of the civic education which is not science oriented subject. This CESAS was used in determining the effect of technology integration mode on student's attitude toward civic education as a school subject. The items are design using modified Likert scale of four scales; Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).The items of questionnaire were worded in both negative and positive form; there are nine negative worded item and nine positive worded item, this is done to avoid being favourable to negative or positive attitude. Furthermore, for the sake of data analysis (inferential

statistics) the negatively worded item was reversed as recommended Pallant (2011) that in some scales the wording of particular items have to bereversed to help prevent response bias. By doing this, the highest score is 72 (high positive attitude: Nine SA of positive worded items + nine SD of negatively worded items) and lowest score is 18 (high negative attitude; 9 SD of positive worded item and 9 SA of negatively worded item).

Strongly Agree	-	4	Agree	-	3
Disagree	-	2	Strongly Disagree	-	1

Reverse Coding (Negative worded item)

Strongly Agree	-	1	Agree	-	2
Disagree	-	3	Strongly Disagree	-	4

Decision mean:	1-18	=	High Negative Attitude
	19-36	=	Low Negative Attitude
	37-54	=	Low Positive Attitude
	55-72	=	High Positive Attitude

Treatment Instruments

The researcher design two digital instructional package and one non-digital instructional package. The Digital instructional packages include Linear PowerPoint instruction Package and Interactive PowerPoint Instruction Package. The Non-Digital instructional package was chalkboard.

Linear PowerPoint Instructional Package

The linear PowerPoint Instructional Package was designedby researcher using PowerPoint Application. The slides in the package feature text, picture and video based on selected topics in civic Education. The researcher used the principles of dual coding theory in designing the package. The package is made up of three topics: National Development, National Integration and Political Apathy.These topics were broken into six lessons. The package was used by connecting laptop computer to school projector

and present it to student through PowerPoint Slide show. The package wasused by civic education teacher(who was formerly trained) while teaching the selected topics in civic education. The teacher in this group served as a presenter and played additional roles of arousing students interest and participation via the multi-media component of the Slide.

Interactive Linear PowerPoint Instructional Package

The Interactive PowerPoint was also designed by researcher using interactive features of PowerPoint such as: Action Button, Hyperlinks, Triger, animation, transition, custom slide show and graphics design supporting tools of PowerPoint. The package is an interactive module that had dropdown menu for selecting activities such as 'virtual project' 'tutorial pane' and 'word-bank. The interactive feature of PowerPoint enables navigation and links to slides just like website. The package is called "quasi-website" that is a resemblance of website. The principle of Cognitive flexibility theory (hyperlink) was used and details of this theory has been thoroughly discussed in chapter two.The package is made up three topics: National integration, National development and Political Apathy but user(s) can only have access to the topic under consideration. Each topic is breakdown into two lesson. The package was of three section: Home page where user will get introductory information about the package and the section also feature drop-down menu for selecting activities to be carried in the package. The drop-down menu has option of 'tutorial' (link to tutorial section), 'virtual project' (link to virtual project section) and 'log-out" (that close the package). In the tutorial section, user get access to learning materials on civic education topic under consideration. The material featured text and graphical illustration and the user can stroll-up and down to read the material. The tutorial pane also has links to home page and virtual project section. The Last section of the Package is virtual project pane where user will engage in gaming activities or virtual inquiry that require user to collect data, analysis them and make

inference from the data collected. The virtual project to be carried out depends on the topic under consideration. For National integration and Political Apathy, user(s)is to engage in gaming activities that require them to build a nation by using good material out the materials provided. Selection of good materials automatically added shapes to the nation while selection of bad material automatically destroys the nation.The user is, therefore, requireto try again. For the National development topic, the user(s) will collect data from citizen of different nations and analysis them using the package. After the analysis, the user is presented result to make inference by answer question prompted by the package.

The facilitator of the learning process while using the package has the fundamental role of presenting the problem to the learner which need a further investigation by the learners using the inbuilt learning and project based activities in the Interactive PowerPoint Package. The facilitator also has the primary responsibility of assigning the learners into groups and monitor the usage of the package by the learners. The facilitator also played the roles of ensuring that students didn't find it difficult to operate the package. After usage of the package elapsed, the facilitator organized students on to share theirexperience in the course of carrying out their project such as what make the project works and what make it not, after which the teacher made general remark on the subject matter. The instructional model used for this Group was Art and Social Science Instructional Model (ASSIM Model) by Garba (2018) with a slight modification to suit secondary school setting.

The Non-digital technology Package

Non-digital technology of Chalkboard was also of the treatment instrument used. The chalkboard was use to present learning contents and to further illustrate concept by drawing on the board. The teacher played the primary roles that teacher in conventional

class usually payed while teaching civic education. The manner in which chalkboard is commonly used to present learning content to the learner was strictly follow. Such as drawing chart, concept map, given note among others.

3.5.1. Validity of the Instrument

The Civic Education Performance Test(CEPT) and Civic Education Student Attitudinal Scale (CESAS)wasgiven to two experts in civic education in the Department of Arts and Social Science Education, Social Studies Section of Ahmadu Bello University Zaria along with Research supervisor. These experts validated for construct and content validity ofthe instrument in relation to the background of Secondary School Students(SSII). The experts specificallyexaminedclarity of questions asked, appropriateness of the questions to the student's level of understanding, and experience, agreement of the items with the test blueprint.In addition, the experts critically examined all the items in the testinstrument with reference to the appropriateness of the content, the relevance ofthe test items to the content and the extent to which the contents cover thetopics/units they are meant to cover. These expert'spointed-out typographical errors and need for re-arrangement of CEPT questions. It was advised that the items of CESAS should be increased to 18 and it should have equal number of positive and negative items. All these observations were effected in the final copy of the instruments.

The treatment instrument (Interactive PowerPoint Package and Linear PowerPoint Package) was validated bytwo Senior Lecturers, one from Instructional Technology Section and the second lecturer is from Social Studies section, of Ahmadu Bello University, Zaria. The instructional technology lecturer validated the architectural design of the packages, the use of colour and suitability of the content in achieving the stated objective. The instructional technology expert also examined the organization of learning activities to be carried in the packages. The Social Studies Senior lecturer

validated the contents of tutorial component of the package, the adequacy of the contentsof the selected topic to be taught and relationship between the virtual project and the contents. The instructional technology expert suggested that, for Interactive PowerPoint Package, at each stage, there should be a link to home page, the drop down menu at home page should have exist menu. Furthermore, that at Virtual Project interface, there should be a button when click, it will show instruction on how to carry out the virtual project. For Linear PowerPoint, the expert recommended that more pictures should be added. The social studies expert suggested that that tutorial on national development should include indicators of national development. All these expert'srecommendations were effected in the before final production of the packages.

3.5.2. Pilot Test

In other to established reliability index of CESAS, a pilot study was conducted in Government Secondary School Wusasa with 20 SSII students. This school is used as pilot study since is not part of the schools used for the main study but share similar characteristics in all respects. Cronbach Alpha Approach was used, where by researcher distributeCESAS once to the students and supervised them till they complete it. The main purpose of pilot study is to confirm the reliability and consistency of the instrument. The data collected from this administered instrument wassubjected to statistical analysis.

3.5.3. Reliability of the Instrument

In order to test the reliability of a treatment instrument (CESAS), data got from pilot study was used. The data obtained was subjected to statistical tools using Cronbach Alpha.An alpha of 0.85 was obtains which implies that the instrument is reliable as suggested by Bolarinwa (2015)that a reliability coefficient (alpha) of 0.70 or higher is

considered acceptable reliability in SPSS. The detail of SPSS output for reliability test is in Appendix viii.

3.6. Procedure for Data Collection

The researcher collectedan introductory letter from the Department of Educational Foundations and Curriculum, Faculty of Education, Ahmadu Bello University, Zaria. The letter was taken to the Zaria Education Secretariat. The director of the Zone therefore issued letters addressing to the principals of the participating schools for acceptance of researcher to conduct a research using their school. Two out 3 schools in which the letter was issuedwere not having adequate computers. This warrant collection of another set of letters from the director of Zaria Education zone. After gotten the three schools and permission was granted by the school authorities, the researcher carried out training for the research assistants on modality of carrying out the study and the role the research assistantsare to play in the course of the study. The research assistants weretwo fellow M.Ed. instructional Technology students and the civic education teachers in charge of SSII stream “A” in each of the schools,the teacher to handle the classes were trained along with two fellow researchers on how to use the instructional package and the how to administered CEPT, CESAS. This was followed by a pretest of CEPT(rearranged and reworded version). The administered questions were retrieved in each of the schoolsat specified time with the help of research assistants.

After pretest has been carried out successfully, the researcher with assistant of fellow researchers who is a computer specialist copied the two instructional package on computer desktop environment for easy access by the students in the interactive

PowerPoint group. This was followed by afour weeks of teaching, 2 contactsof 40 minutes in a week for each group using the treatment package specified for each group. Post-test was administered for each of the group using the 5th week, (see detail in table 3).

Table 3. Treatment Plan

Weeks	Group A: (Linear PowerPoint)	Group B: Non-digital technology	Group C: Interactive PowerPoint
W1 Day 1	Pretest	Pretest	Pretest
W2 Day2-3	Training Research Assistant	Training Research Assistant	Training Research Assistant
W3-Day1	Instructional Delivery on National Integration	Instructional Delivery on National Integration	Instructional Delivery on National Integration
W3-Day2	Completion ofInstructional Delivery on National Integration	Completion of Instructional Delivery on National Integration	Completion of Instructional Delivery on National Integration
W4-Day1	Instructional Delivery on National Development	Instructional Delivery on National Development	Instructional Delivery on National Development
W4-Day2	Completion ofInstructional Delivery on National Development	Completion of Instructional Delivery on National Development	Completion of Instructional Delivery on National Development
W5-Day1	Instructional Delivery on Political Apathy	Instructional Delivery on Political Apathy	Instructional Delivery on Political Apathy
W5-Day2	Completion of Instructional Delivery on Political Apathy	Completion of Instructional Delivery on Political Apathy	Completion of Instructional Delivery on Political Apathy
W6	Post-Test	Post-Test	Post-Test

3.7. Procedure for Data Analysis

In analyzing the data obtained in the courseof this study, the quantitative data was analyzed using descriptive and inferential statistics. The research question one and two were answered using descriptivestatistics of mean and standard deviation. The null hypotheses 1was tested using Analysis ofCovariance (ANCOVA) where pre-test achievement on CEPT was used as covariance while ANOVA was used in Testing Hypothesis2 because there was no any confounding variable to be eliminated using statistics. For the Post-hoc analysis,Sheffa and Least Significant Difference (LSD) was used for hypothesis 1 and 2 respectively. ANCOVA is commonly used for analysis of quasi-experimental studies, when the treatment groups are not randomly assigned and the researcher wishes to statistically "equate" groups on one or more variables which may differ across groups (Pallant, 2011).

It worth noting that not all students that participated in the study were included in the final analysis. Students that missed either pretest, treatments or post-test were excluded from the analysis. 44 (68.8%) out 64 students in group “A” meet the criterion of being included in the analysis,54 (81.8%) out of 66 students in group “B” meet up with the criterion while 56 (75.7%) out 74 students in Group “C” meet up with the criterion of being included in the analysis. This shows that 154 (75%) out of 204 students meet up with the criterion of being included in the analysis.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter presents the data elicited via the administered treatment instruments. The chapter featured analysis of participant bio-data, answering of research questions, testing of hypotheses, summary of major findings and discussion of major findings.

4.2. Description of Participants'Bio-data

This section presents distribution of the participant by bio-data considered useful for the study.

Table 4. Distribution of the Participant by Gender

Table 4 shows that 131 male SSII students (85.06%) and 23 female SSII students participated in the study. This shows that male students are more represented in the study than female counterpart. The justification for this is because of the criterion earlier stated on how participating school was sampled (possession of functional computers lab and they must have been taught computer science for two consecutive terms). Three school meet up with these criteria; one co-education and two boy only secondary schools. The 14.94% of the female students that participated in the study are from the co-education school.

4.3. Answering of the Research Questions

This section dealt with answering of the research questions 1-6. The data elicited from the administered Civic Education Performance Test (CEPT), Civic Education Students Attitudinal Scale (CESAS), icipant Observation and Focus Group Discussion (FGD) were used in answering research question 1-6 respectively.

Descriptive statistics of mean and standard deviation was used to answer the raised research questions 1-4. Question 5-6 were answer using content analysis which features discussion of the themes emanated from content analysis of the observation checklist and focus group discussion on barriers to integration of available digital technology in teaching and learning of civic education.

RQ1: What is the difference in the mean performance scores of SSII students taught civic education using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State?

This question was answered by comparing the different in the mean scores obtained by the three research group in Civic Education Performance Test (CEPT). The comparison was carried out using the mean and standard deviation of each group.

Table5: Descriptive Analysis of the difference in the Mean Performance Scores of threeResearch groups

Groups	Mean	%	Std. Deviation	N
IPP	39.05	65.1	7.85	44
LPP	34.85	58.1	7.41	54
NDT	33.36	55.6	7.22	56
Total	**35.51**	**59.2**	**7.78**	**154**

Table 5 shows that there is a differencein the mean performance scoresof the three research group in civic education. The means score of Interactive PowerPoint (IPP) group(mean=39.05) is 10.72% differs(different = 4.19) from the mean score of Linear PowerPoint (LPP) Group (mean=34.85) and 14.57% higher (different =5.69) than the mean score of Non-Digital Technology (NDT) group (M=33.36).There is also a slight difference (different=1.49/4.34%) between the mean score of LPP group and NDT group in favour of LPP.The standard deviation of the three group are to some extent the samewhich can be considered as moderate standard deviation. This implies that the score

of individual students from each group are not far from their group mean. This shows that mean performance scoresof IPP group is better than LLP group and NDT group.

RQ2: What is the difference in students' attitude toward learning civic education when taught using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State?

This question was answered by comparing the difference in the mean scores of the three research group in Civic Education Student Attitudinal Scale (CESAS). The comparison was carried using the mean and standard deviation of each group.

Table6: Descriptive Analysis of the difference in the students' attitudes toward Learning Civic Education

Groups	Mean	%	Std. Deviation	N
IPP	59.77	83.0	4.10	44
LPP	53.63	74.5	3.94	54
NDT	38.84	53.9	4.27	56
Total	**50.01**	69.5	**9.71**	**154**

Table 6 shows that there is a difference in the students' attitudes toward learning civic education when taught using IPP, LPP and NDT. The means score of Interactive PowerPoint (IPP) group (mean=59.77) is 10.27% differs (mean different =6.14) from the mean score of Linear PowerPoint (LPP) Group (mean=53.63).The mean score of IPP group is 35.02% greater (mean different=20.93) than the mean score of Non-Digital Technology (NDT) group (mean=38.84). The mean score of LPP group and NDT group is also differs (different=14.79/27.58%) in favour of LPP. The standard deviation of the three group are to some extent the same which can be considered as moderate standard deviation. This implies that the scores of individual students from each group are not far from their group mean.Using the mean bench mark drawn for decision making, student

in IPP group are of high positive attitude, LPP group are of Low positive attitude and NDT are of low negative attitude toward learning civic education.

4.4. Testing of Research Hypotheses

The formulated null hypotheses 1 was tested using Analysis of Covariance (ANCOVA) while hypothesis 2 was tested using One-WayAnalysis of Variance (ANOVA).The purpose of testing these null hypotheses is to discover if the different that exist in the mean performance scores(as established in answering of research question section) are statistically significant.

Hypothesis 1:

There is no significant difference in the mean performance scores of SSII students taught civic education using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State.

Hypothesis one was tested by running Analysis of Covariance on scores obtained by each of the three research group in Civic Education Performance Test (CEPT), the pretest scores of each of the group therefore was used as covariance. This was done in order to establish if the observed difference in the academic performance of the groups is statistically significant after statistical eliminationof previous knowledge bias.

Table 7a: ANCOVA Results of mean difference in the academic performance scores of the three Research groups

Source of Variation	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	6565.213a	3	2188.404	121.972	0.00	
Intercept	309.88	1	309.88	17.27	0.00	
Pretest	5732.30	1	5732.30	319.49	0.00	
Group	485.62	2	242.81	13.53	0.00*	Rejected
Error	2691.28	150	17.94			
Total	203406.00	154				
Corrected Total	9256.49	153				

*: Significant at $p<0.05$

Table 7b: LSD Post-hoc analyses of mean performance scores of the three Research groups

(I) Groups	Mean		(J) Groups	Mean Difference(I-J)	Std. Error	Sig.[b]
	Mean	Mean[a]				
IPP	39.0455	37.440[a]	LPP	1.154	.877	.190
			NDT	4.205*	.857	.000
LPP	34.8519	36.286[a]	IPP	-1.154	.877	.190
			NDT	3.051*	.813	.000
NDT	33.3571	33.235[a]	IPP	-4.205*	.857	.000
			LPP	-3.051*	.813	.000

*. The mean difference is significant at the .05 level.
b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Table 7a shows ANCOVA results of mean performance scoresof the students taught civic education using NDT, LPP and IPP. From the table, the $F(2,150) = 13.53$, $p<0.05$. This indicated that the difference in the mean scores of the three research groups is statistically significant. Post hoc tests (table 7b) shows that difference between mean score of the IPP and LPP is not significant (p=0.190); IPP and NDT is significant (p=0.00) in favour of IPP; LPP and NDT is significant (p=0.00) in favour of LPP. Thus, the null hypothesis that says; there is no significant difference in students' academic performance in civic education among the three research groups expose to different mode of technology integration in Zaria Education Zone of Kaduna State is rejected

Hypothesis 2:

There is no significant difference in students' attitude toward civic educationwhen taught using non-digital technology, Linear PowerPoint and Interactive PowerPoint in Zaria Education Zone of Kaduna State.

Hypothesis two was tested by running Analysis of Variance (ANOVA) on scores of each of the three research groups in Civic Education Students Attitudinal Scale (CESAS) in order to establish whether the difference that exist in the group scores is statistically significant.

Table 8a: ANOVA Results ofgroups mean scores in Civic Education Students Attitudinal Scale.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	11889.120	2	5944.560	352.582	.000
Within Groups	2545.873	151	16.860		
Total	**14434.994**	**153**			

Table 8b: Sheffe Post-hoc analyses of the groups mean scores inCivic Education Students Attitudinal Scale.

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.
IPP	LPP	6.14310*	.83391	.000
	NDT	20.93344*	.82720	.000
LPP	IPP	-6.14310*	.83391	.000
	NDT	14.79034*	.78313	.000
NDT	IPP	-20.93344*	.82720	.000
	LPP	-14.79034*	.78313	.000

Table 8a shows the ANOVA results of the means score of students' in CESAS when taught using IPP, LPP and NDT. From the table, the F (2,151) =352.582, $p<0.05$. This indicated that difference in the mean scores of the three research groups is statistically significant. Post hoc tests (table 8b) shows that difference between mean score of each of the group are statistically significant at (p=0.00) in favour of IPP. Thus, the hypothesis that say, there is no significant difference in students' attitude toward civic education when taught using NDT, LPP and IPP in Zaria Education Zone of Kaduna State is rejected.

4.5. Summary of the Major Findings

The study sustained the following findings

1. Significant difference exists in the mean performance scores of students in Non-digital technology of Chalkboard group, Linear PowerPoint group and those in Interactive PowerPoint group in favour of Interactive PowerPoint and Linear PowerPoint groups.
2. Significant difference exists in the mean rating of students' attitude toward civic education when taught using Non-digital technology of Chalkboard,

Linear PowerPoint and those taught using Interactive PowerPoint in favour of Interactive PowerPoint.

4.6. Discussion of the Findings

This study establishedthat there was a statistical significant difference in the mean performance scoresof the Interactive PowerPoint group, Linear PowerPoint group and Non-digital technology groups in favour of the IPP and LPP.This finding is line with Adeniran, Laolu, and Ayotola (2016), Effiong and Ekpo (2016), Falode, Ojoye, Ilobeneke, Falode (2016), Gambari, Yusuf and Thomas (2015)who reported positive effect of different kind of computerassisted instruction (interactive hypermedia, Computer based collaborative learning modes and Web-quest) on students' academic achievement. These study were conduct at secondary school level using quasi-experimental similar to the present study school setting and methodology. The present studyfindingis also similar to the findings of Bahadur and Boodun (2013) who reported that Students taught using Interactive PowerPoint package were able to learn and understand the different concepts related to water.The finding of the present study is contrary to Carter, Greenberg and Walker (2016) who found that computing devices in the classroom reduces final exam scores.This implies that students' academic performance will improve when IPP or LLP is integrated in the teaching of Civic education.

The study also established that there was statistically significant difference in the attitude of students toward civic education when taught using Interactive PowerPoint, Linear PowerPoint and Non-digital technology in favour of IPP.This finding is in alignment with Falode, Ojoye, Ilobeneke, Falode (2016), Liu and Chen (2014), Gambari, Gbodi, Olakanmi, Abalaka (2016) who reported positive effect of digital instructional

package on student's interest, attitude and motivation. This shows that Interactive PowerPoint is capable of developing positive attitude in students toward civic education.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The study was based on effect of technology integration on secondary school students learning outcomes in civic education in Zaria education zone of Kaduna state Nigeria. The study was motivated by non-utilization of available digital technology in senior secondary for implementing civic education curriculum despite the needfulness of such in educating 21st century learners. The study used quasi-experimental design to establish the effect of Interactive PowerPoint, Linear PowerPoint and Non-digital technology of chalkboard on academic achievement and attitude of senior secondary school students toward civic education. The choice of PowerPoint is on the basis availability of the application virtually in all computer system and schools in the area of study are equipped with computers.

In chapter one, background to study was established, the problem of the study, objectives of the study, research questions and the null hypotheses were stated. The chapter also feature basic assumptions, significance of the study and scope of the study. The chapter two of the study present the reviewed literature and empirical studies. Conceptual clarifications of the key variables, theoretical framework review literature, review of empirical studies, summary and the gap were subsection under which the review related literatures were presented. Chapter three discussed the methodology adopted in carrying out the research work. The chapter was arranged in sequential order ranging from research design, population of the study, sample and sampling techniques, instrumentation, procedure for data collection and procedure for data analysis. Chapter

four on the other hand presented analysis and discussion of results. In this chapter, the formulated research questions were answered, the formulated hypotheses were tested. The chapter also discussed major finding of the study. Chapter five summarized the research work. In the chapter, conclusion was drawn, recommendations and suggestion for further study were made.

5.2. Conclusions

Inferring from the findings of this study, the study concluded that there are education advantages of integrating digital technology of Interactive PowerPoint and Linear PowerPoint in teaching of civic education. However, Interactive PowerPoint package is more effectivethan non-digital technology and Linear PowerPoint package because, different from improving students' academic performance in civic education, Interactive PowerPoint package also developed high positive attitude in students toward civic educationas school subject. This implies that when Interactive PowerPoint is integrated in teaching of civic education, both cognitive and affective behaviours of learners will improve.

5.3 Recommendations

Based on the findings of this study, the following recommendation were made:

i. Interactive PowerPoint Instructional packages should be encouraged in schools for teaching civic education. As established in this study, learning civic education through Interactive PowerPoint not only improved students' academic performance but also develop positive attitude in students toward civic education as school subject than non-digital technology of chalkboard and linear PowerPoint.

ii. Linear PowerPoint instructional Package was also found to be effective in teaching civic education compared to non-digital technology of chalkboard.Teachers should use Linear PowerPoint Instructional package if they could not develop nor adapt Interactive PowerPoint instructional packages.

iii. Concerned NGOs and Government bodies should provide adequate computer facilities that can enhance integration of Interactive PowerPoint and Linear PowerPoint packages in teaching and learning of civic education in Zaria education zone of Kaduna state.

5.4 Contributions to Knowledge

The study has established the potentialities of PowerPoint Application (One of the commonly available computer applications in Nigeria schools)in designing and implementing interactive instructionsthat are in compliance with 21st century learning environment.This emphasized the needs for teachers to find ways of integrating Interactive PowerPoint Packages in their lessons.

Secondly, the study also established the duality of Interactive PowerPoint effectiveness on students learning outcomes when integrated in the teaching of civic education in Nigeria schools. This emphasized the needs for teachers to find ways of integrating Interactive PowerPoint Packages in order to achieve affective objectives of civic education curriculum which most often left untouched.

5.5 Suggestions for Further Studies

The study was limited to Senior Secondary schools; the same study could be carried out at Junior secondary school level to know whether there will be level of disparity in students' academic achievement when Interactive PowerPoint is used to

teach civic education. Furthermore, the study only examines some selected topics in civic education curriculum, other topic may be used to get better understanding of effectiveness of Interactive PowerPoint and Linear PowerPointin all the topics that made up civic education curriculum. Specifically, based on the limitations of this study, further study can be carried out in the following area:

1. Effect of Interactive PowerPoint of Cooperative, Competitive and Individualized on Senior Secondary school students Learning Outcome in civic education
2. Effect of Game-Based Interactive PowerPoint on Senior Secondary School Students' LearningOutcomes in Civic Education
3. Effect of Interactive PowerPoint of Virtual Inquiry on Senior Secondary School Learning Outcome in Civic education
4. Assessment of barriers to technology integration in Senior Secondary school in Zaria Education Zone of Kaduna State.

These studies when carried out, will provide empirical findings of the best mode of using interactive PowerPointwhat account for non-utilization of available digital technologies in senior secondary schools in Zaria Education Zone of Kaduna State.

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APPENDICES

APPENDIX I

RESEARCH INSTRUMENTS

Department of Educational Foundation and Curriculum,

Instructional Technology Section,

Faculty of Education,

Ahmadu Bello University, Zaria.

Date_____

Dear Respondent,

REQUEST FOR PARTICIPATION IN A RESEARCH

The researcher is a M.Ed. student of the above named institution carrying out a study on "Effect of technology Integration on Attitude and Academic Performance of Senior Secondary School Students in Zaria Education Zone, Kaduna State, Nigeria" The researcher is therefore soliciting for your participation and cooperation in the process of this study. Any information you provide will be treated with high level of confidentiality as it will only be used for the purpose of this research. The reliability of this study depends solely on your sincerity and cooperation.

Thank you and best regards

Yours Faithfully,

Signed

Soretire Kabiru Adisa

P16EDFC8078

CIVIC EDUCATION PERFORMANCE TEST (CEPT) FOR SENIOR SECONDARY II STUDENTS

Gender: M [ ] F [ ] **Time: 35 Minutes**

Name of School_____

Instruction: Please tick (√) the correct answer from option A-D

1. The societal value which members are expected to uphold in order to ensure development is
   (a) Title.
   (b) Integrity.
   (c) Apathy.
   (d) Compromise.
2. Which of the following is not a form of political participation?
   (e) Taking part in voters'registration exeecise.
   (f) Voting during elections.
   (g) Joining political party.
   (h) Ballot box stuffing during elections
3. Democracy thrives most where there is
   (a) Non partisan judiciary.
   (b) Freedom of speech and association.
   (c) Absence of universal suffrage.
   (d) One-party system.
4. The following are the skills that promote interpersonal relationship except
   (a) Meanness.
   (b) Honesty.
   (c) Tolerance.
   (d) Caring
5. Lack of interest in politics by citizens in the country is referred to as political
   (a) Ignorance.
   (b) Apathy.
   (c) Participation.
   (d) Socialization.

6. A formal discussion between two groups, communities or countries when they are trying to solve a disagreement is_____
    (a) Tolerance.
    (b) Dialogue.
    (c) Patience.
    (d) Communication.
7. The importance of inter-communal relationship includes the following except
    (a) Unity in diversity.
    (b) Peaceful co-existence.
    (c) Dispute.
    (d) Community development.
8. An ideology that aims at promoting national consciousness and identity is
    (a) Nationalism.
    (b) Socialization.
    (c) Civic culture.
    (d) Progressivism.
9. Inter-tribal marriage can promote national integration in the following ways except
    (a) Strengthening the unity among Nigerian
    (b) Promote the spirit of common identity
    (c) Brings division among the ethnic groups
    (d) Boosting the spirit of one Nigeria
10. One of the major barriers to National Development is the
    (a) Low poverty level
    (b) Existence of multi-party system
    (c) Prevalence of corrupt practices
    (d) Persistent rural-urban migration
11. Political apathy often leads to
    (a) Low level of participation in politics
    (b) Good Governance
    (c) Political Stability
    (d) Low Literacy Level

12. National integration can be promoted through the following measures except
    (a) Application of federal character
    (b) Formation of Political parties with national outlook
    (c) Equal access to education
    (d) Regional Sentimentalism

Use the story below to answer question 13-14

Chief Bilisi was a prominent politician and honorable minister in Kontoga Republic. He had sponsored several candidates to power and made them to swear oath of allegiance to him. In return, they awarded contract and offered financial and material assistance to him at the expense of the public. This has resulted in the none-provision of social amenities. These were some of the grievances the community had against him for which a mop gathered in front of his house shouting and hauling abusive word at him. They did not stop at that as they vandalized his property and obstructed vehicle movement.

13. When leaders like Chief Bilisi placed self-interest above public good, the result is that
    (a) Rebellion become inevitable
    (b) Citizen will actively participate in politics
    (c) Good leader will be elected
    (d) There will be free and fair election
14. A major lesson Nigerians could learn from the story is that
    (a) Leaders can empower voters by giving them money
    (b) Security official should use brutal force on citizen.
    (c) The underprivileged should not vie for elective positions
    (d) Greed and related vices can cause serious bridge of the law
15. National Integration is a process that can create sense of _____ among citizens
    (a) Marginalization
    (b) Corruption
    (c) National consciousness
    (d) Regional consciousness
16. Democracy can promote national development if there is
    (a) Good governance
    (b) Promotion of culture
    (c) Immunity for leaders

(d) Registration of parties

17. The active involvement of people in the decision-making process in a state indicates political_____

(a) Indoctrination

(b) Participation

(c) Struggle

(d) Perambulation

18. Low level of poverty is an indicator of _____

(a) Corrupt practices

(b) Political instability

(c) National Development

(d) Insecurity

19. Youth can be empowered for national development through the following ways except one

(a) Job creation

(b) Access to functional education

(c) Political thuggery

(d) Skill acquisition

20. Which of the following is not major reason for political apathy?

(a) Political Violence

(b) Unfulfilled Political Promises

(c) Bad governance

(d) Cross carpeting phenomena

21. Which of the following may prevent a citizen from voting in a general election?

(a) Lack of stable income

(b) High cost of living

(c) Non-registration

(d) Political neutrality

22. The right to vote and be voted for can only be enjoyed by Nigerian citizen who attain the age of

(a) 14

(b) 15

(c) 16

(d) 18 and above

23. The spirit of nationalism and patriotism promotes_____

(a) Colonialism

(b) Discord

(c) Indirect rules

(d) Unity

24. Which of the follow can promote national development?

(a) Unequal access to quality education

(b) Promotion of foreign goods

(c) Bribery and corruption

(d) Equality of all citizen before the law

25. The most popular means through which citizens of country can participate in politics is by

(a) Being a member of political parties

(b) Engaging in constructive criticism

(c) Engage in political debates

(d) Voting in election.

26. The following are the direct effect of corruption on national development except:

(a) High rate of criminal activities

(b) High level of poverty

(c) Political instability

(d) Booming economy

27. National consciousness can be promoted among Nigerian in following ways except

(a) Practice of justice and fairness

(b) Representative democracy

(c) Exemplary leaderships

(d) Practice of divide and rule

28. The following are indicators of country's level of national development

(a) The quality of Education

(b) The state of road network

(c) The source of water for the majority of the citizen

(d) Regularity of sharing money to the citizens

29. `When there is wide gap between the rich and the poor, a country is said to have

(a) Developed nationally

(b) Earned international recognition of better performance

(c) Mismanaged country's resources

(d) Have created equal economic opportunity for all citizens

30. The implication of regional sentimentalism includes the following except

(a) Emergency of legitimate leaders

(b) Bias in passing judgement

(c) Election of regional oriented leaders

(d) High level of political propaganda

Table of Specification

CIVIC EDUCATION STUDENT ATTITUDINAL SCALE

S/N	**Like and Dislike of Civic Education**	SA	A	D	SD
1	I like the topics in civic education				
2	I enjoy the activities we do in Civic Education Class				
3	I do not like Civic Education				
4	What I learn in civic Education are not interesting				
5	I am happier in a civic education class than in any other class				
6	When I hear civic education, I have a feeling of dislike				
7	I dislike Civic Education class because is dull and boring				
8	I like Civic Education because is fascinating and fun.				
9	Civic Education makes me feel uncomfortable, restless, irritable, and impatient				
10	I like Civic education because it teaches what happens around us.				
11	In civic education I try to do as well as I can				
12	I will never make mistake of registering civic education as one of my JAMB subjects				
13	I find it difficult to comprehend what is being taught in Civic education Class, I don't have hope of passing				
14	Civic education will be my first choice at high institution because I can easily understand what we are being taught in civic education class.				
15	What I'm being taught in Civic education is important in everyday life				
16	I wonder why civic education is being taught in school				
17	I don't see any need to waste my time in study civic education as the subject is not require in workplace				
18.	Understand of civic education is capable of making me an effective citizen				

Adapted from: A Biology Attitude Scale by Russell and Hollander (1975) and an Instrument to Measure Mathematics Attitudes by Marshto (2004).

APPENDIX II

LESSON PLAN

LESSON PLAN FOR INTERACTIVE POWERPOINT GROUP

School	Interactive PowerPoint
Class:	SSII A
Age Group:	13-18
Subject:	Civic Education
Topic:	National Integration
Previous Knowledge:	Orderliness
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of national Integration 2. Knowing the act that is capable of building a nation 3. Build Virtual nation using the acts that is capable of building a nation 4. Be able to share their experience with peers while building virtual nation
Presentation	The teacher begins the lesson with inquisitive questions
Steep One:	The teacher asks the students of number of ethnic groups existing in Nigeria
Step Two:	The teacher asks the students if these ethnic group are the same in landmark and population; they will be asked also to mention some of the ethnic groups
Step Three:	The teacher further inquiry into how a country can create sense of belonging in both small and big ethnic groups.
Step Four:	The teacher explains to the learner that any country that is able to create sense of belonging in both small and big ethnic groups and giving all irrespective of size to participate in National Activities is said to have achieved state of National Integration.

Step Five:	The teacher further explains to the learner that National integration is similar to Nation building, in building a nation therefore, there are good materials that enhance the process of building a nation so also there are bad materials that instantly destroy countries effort toward building a nation.
Step six:	The teacher Inform the Class that they are going to carry out a Project Title “Nation Building” they are going to be grouped into group of six members only. Each of the group members are to work collaboratively in building the nation. On each the group computer you will locate EDUGOTEC, launch the package. Read the Instruction, click on menu and click on Virtual Project.
Step Seven:	Teachers monitor the activities of students while using the computer and intervene where necessary. This will be done for 20 minutes. After which the teacher will order the students to screenshot their project status and Paste it in Microsoft Word with the help of the teacher
Step 8:	The Student are therefore asked to share their virtual project experiences with other students group by group giving 3 minutes each.
Conclusion:	The teacher concludes the lesson by summarizes while some materials are destructive to nation building while others are adding shape to nation building.

LESSON PLAN FOR INTERACTIVE POWERPOINT GROUP

School	Interactive PowerPoint
Class:	SSII A
Age Group:	13-18
Subject:	Civic Education
Topic:	National Development
Previous Knowledge:	National Integration
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of National Development 2. Identify the indicator of National Development 3. Collect and Analyze virtual data on National Development indicator 4. Group presentation of findings from Virtual Data Collection and analysis on National Development
Presentation	The teacher begins the lesson with inquisitive questions
Step One:	The teacher asks the students to mentioned part of their state that can be regarded as developed areas
Step Two:	The teacher asks the students to give reason while those areas are considered developed and while other are considered undeveloped
Step three:	The teachers explain the concept of national development to the students as the process by which a country improves the social and economic wellbeing of its citizens through the provision of amenities such as quality education, good roads, medical facilities and other social infrastructure.
Step four:	The teacher Inform the Class that they are going to carry out virtual data collection from two countries that have three states each. They are going to use the data analyze the data using the package. At end of the analysis, there are

series of questions to be answered. The teacher instructs the students to form group of five members each. Each of the group members are to work collaboratively in collecting and analyzing the data EDUGOTECT Package.On each the group computer you will locate EDUGOTEC, launch the package. Read the Instruction, click on menu and click on Virtual Project.

Step five: Teachers monitor the activities of students while using the computer and intervene where necessary. This will be done for 20 minutes. After which the teacher will order the students to screenshot their project status and Paste it in Microsoft Word with the help of the teacher

Step seven: The Student are therefore asked to share their virtual project experiences with other students group by answer question posted for their groups: The teacher asks the following questions:

1. Which of the two countries is Nationally developed and why?
2. Which State is the poorest state and why are they poor?
3. What is the Relationship between Year of Schooling and income?
4. What is relationship between income and access to safe water?
5. What is the effect of unfair distribution of country's wealth?
6. Which of the country do you wish to belong and why

Conclusion: The teacher concludes the lesson by explained indicators of National development to include: Equal Access to quality water, education, health facilities, justice and social amenities. Even distribution of country's resources.

LESSON PLAN FOR INTERACTIVE POWERPOINT GROUP

School	Interactive PowerPoint
Class:	SSII A
Age Group:	13-18
Subject:	Civic Education
Topic:	Political Apathy
Previous Knowledge:	Democracy and National Development
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of Political Apathy 2. Identify how citizen can participate in Politic 3. Identify the reasons for none-participation in politics 4. Build Virtual nation using the Appropriate proper ways of participating in Politics 5. Be able to share their experience with peers while building virtual nation
Presentation	The teacher begins the lesson with inquisitive questions
Steep One:	The teacher asks the students to mention registered political parties in Nigeria and to state the reason why people join political parties.
Step Two:	The teacher explains concept of political apathy as "Political none participation of citizens in political activities"
Step Three:	The teacher asks the students to state the implication of political apathy on national development
Step four:	The teacher Inform the Class that they are going to carry out a Project Title "Building Nation in Political Participation" they are going to be grouped into group of five members only. Each of the group members are to work collaboratively in building the nation. On each the

	group computer you will locate EDUGOTEC, launch the package. Read the Instruction, click on menu and click on Virtual Project.
Step Five:	Teachers monitor the activities of students while using the computer and intervene where necessary. This will be done for 20 minutes. After which the teacher will order the students to screenshot their project status and Paste it in Microsoft Word with the help of the teacher
Step 8:	The Student are therefore asking to share their virtual project experiences group by group in three minutes each.
Conclusion:	The teacher concludes the lesson by summarizes while some act of political participation and destructive to nation building while others are adding shape to nation building.

LESSON PLAN FOR LINEAR POWERPOINT

School	Linear PowerPoint
Class:	SSII A
Age Group:	13-16
Subject:	Civic Education
Topic:	Orderliness
Previous Knowledge:	National Integration
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of national Integration 2. Knowing the act that is capable of building a nation 3. Build Virtual nation using the acts that is capable of building a nation 4. Be able to share their experience with peers while building virtual nation
Presentation	The teacher begins the lesson with inquisitive questions by asking students to explain the meaning of the image presented on projector (hands laying on Nigeria Map)
Steep One:	The teacher asks the students of number of ethnic groups existing in Nigeria
Step Two:	The teacher asks the students if these ethnic group are the same in landmark and population; they will be asked also to mention some of the ethnic groups
Step Three:	The teacher further inquiry into how a country can create sense of belonging in both small and big ethnic groups.
Step Four:	The teacher explains to the learner that any country that is able to create sense of belonging in both small and big ethnic groups and giving all irrespective of size to participate in National Activities is said to have achieved state of National Integration.

Step Five:	The teacher displays pictures portraying integration at political party level, youth organization and religious level
Step Six:	The teacher further explains to the learner that National integration is similar to Nation building, in building a nation there are good acts that enhance the process of building a nation so also thereare bad acts that instantly destroy countries effort toward building a nation.
Step Seven:	Teacher presents to the students more slides showing acts such as corruption, bribe, intolerance and nepotism as some of the act that can weaken efforts toward building a nature.
Step Eight:	The teachers summarize the lesson.
Evaluation:	The teachers asked the students to list other acts capable of slowdown achievement of national integration.

LESSON PLAN FOR LINEAR POWERPOINT

School	Linear PowerPoint
Class:	SSII A
Age Group:	13-16
Subject:	Civic Education
Topic:	National Development
Previous Knowledge:	National Integration
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of National Development 2. List the indicator of National Development 3. List the factor that can slowdown National Development 4. Classroom Discussionon picture of developing and undeveloped states within a country.
Presentation	The teacher begins the lesson with inquisitive questions
Step One:	The teacher asks the students to mentioned part of their state that can be regarded as developed areas
Step Two:	The teacher asks the students to give reason while those areas are considered developed and while other are considered undeveloped
Step three:	The teachers explain the concept of national development to the students as the process by which a country improves the social and economic wellbeing of its citizens through the provision of amenities such as quality education, good roads, medical facilities and other social infrastructure.
Step four:	The teacher projected picture of different area from two different countries and ask students which country from the picture is nationally developed.
Step five:	The teachers present indicator of National Development to students via project to includes:

1. A fair access to quality education that boost citizen year of schooling
2. A fair access to health services that reduce mortality rate
3. A fair access to economic opportunities that promote sustainable income
4. A fair access to basic social amenities like power-supply, safe drinkable water, road network, health facilities
5. A fair access to quality water, year of schooling, maternal mortality rate, fertility rate, incomes among others.

Step Six: The teachers presented illustrative pictures of factor that can slowdown National Development to include:

1. Unemployment
2. Bribing and Corruption
3. High Rate of Illiterates citizen
4. Low access to quality education
5. Nepotism
6. Inequality

Conclusion: The teacher concludes the lesson by summarizes the lesson

Evaluation: The teachers asked the students to list other acts capable of slowdown achievement of National Development.

LESSON PLAN FOR LINEAR POWERPOINT

School	Linear PowerPoint
Class:	SSII A
Age Group:	13-16
Subject:	Civic Education
Topic:	Political Apathy
Previous Knowledge:	National Development
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of Political Apathy 2. Explains the implication of Political apathy 3. Acts capable of promoting Political Apathy 4. Enumerate reason people givens for non-participation in Politics
Presentation take slides	The teacher begins the lesson by asking the students to a look at the image display on projector. The first two are image of protest and political campaign.
Steep One:	The teacher asks the students what can they say about these people, which act are they carrying out?
Step Two:	The teacher furthers asked students what act opposing to the act they saw in the slides. The teacher uses the discussion to build the concept of political apathy
Step Three:	The teacher asks open up more slides on implication of political apathy
Step Four:	The teacher explained reason why people don't participate in politics
Step six:	The teacher summarizes the lesson.
Evaluation:	The teacher asks the student to listen to radio news or watch TV news listening any political issues and write what the issues all about.

LESSON PLAN FOR NON-DIGITAL TECHNOLOGY

School	Non-digital Technology
Class:	SSII A
Age Group:	13-16
Subject:	Civic Education
Topic:	Orderliness
Previous Knowledge:	National Integration
Behavioral Objects:	At the end of the Lesson, students should be able: 5. Define concept of national Integration 6. Knowing the act that is capable of building a nation 7. Build Virtual nation using the acts that is capable of building a nation 8. Be able to share their experience with peers while building virtual nation
Presentation	The teacher begins the lesson with inquisitive questions by asking students to explain the meaning of the image draw on the blackboard (hands laying on Nigeria Map)
Steep One:	The teacher asks the students of number of ethnic groups existing in Nigeria
Step Two:	The teacher asks the students if these ethnic group are the same in landmark and population; they will be asked also to mention some of the ethnic groups
Step Three:	The teacher further inquiry into how a country can create sense of belonging in both small and big ethnic groups.
Step Four:	The teacher explains to the learner that any country that is able to create sense of belonging in both small and big ethnic groups and giving all irrespective of size to participate in National Activities is said to have achieved state of National Integration.

Step Five:	The teacher displays pictures from a newspaper portraying national integration at political party level, youth organization and religious level
Step Six:	The teacher further explains to the students that National integration is similar to Nation building, in building a nation there are good acts that enhance the process of building a nation so also there are bad acts that instantly destroy countries effort toward building a nation.
Step Seven:	Teacher explains the students the acts that are capable of acts slowdown efforts toward building a nation to include: corruption, bribe, intolerance and nepotism and how these act can weaken efforts toward building a nature.
Step Eight:	The teachersummarizes the lesson.
Evaluation:	The teachers asked the students to list other acts capable of slowdown achievement of national integration.

LESSON PLAN FOR NON-DIGITAL TECHNOLOGY

School	Non-digital Technology
Class:	SSII A
Age Group:	13-16
Subject:	Civic Education
Topic:	National Development
Previous Knowledge:	National Integration
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of National Development 2. List the indicator of National Development 3. List the factor that can slowdown National Development
Presentation	The teacher begins the lesson with inquisitive questions
Step One:	The teacher asks the students to mentioned part of their state that can be regarded as developed areas
Step Two:	The teacher asks the students to give reason while those areas are considered developed and while other are considered undeveloped
Step three:	The teachers explain the concept of national development to the students as the process by which a country improves the social and economic wellbeing of its citizens through the provision of amenities such as quality education, good roads, medical facilities and other social infrastructure.
Step four:	The teachers writes name of two state in Nigeria and writes percentage of level of development of six selected local from each of the state. Students were therefore as to indicated which of the state is nationally developed
Step five:	The teachers explainsindicators of National Development to students to include:

1. A fair access to quality education that boost citizen year of schooling
2. A fair access to health services that reduce mortality rate
3. A fair access to economic opportunities that promote sustainable income
4. A fair access to basic social amenities like power-supply, safe drinkable water, road network, health facilities
5. A fair access to quality water, year of schooling, maternal mortality rate, fertility rate, incomes among others.

Step Six: The explains factor that can slowdown National Development to include:

7. Unemployment
8. Bribing and Corruption
9. High Rate of Illiterates citizen
10. Low access to quality education
11. Nepotism
12. Inequality

Conclusion: The teacher concludes the lesson by summarizes the lesson

Evaluation: The teachers asked the students to list other acts capable of slowdown achievement of National Development.

LESSON PLAN FOR NON-DIGITAL TECHNOLOGY

School	Non-digital Technology
School	Linear PowerPoint
Class:	SSII A
Age Group:	13-16
Subject:	Civic Education
Topic:	Political Apathy
Previous Knowledge:	National Development
Behavioral Objects:	At the end of the Lesson, students should be able: 1. Define concept of Political Apathy 2. Explains the implication of Political apathy 3. Acts capable of promoting Political Apathy 4. Enumerate reason people givens for non-participation in Politics
Presentation take	The teacher begins the lesson by asking the students to a look at the image display on through newspaper. The first two slidesare image of protest and political campaign.
Steep One:	The teacher asks the students what can they say about these people, which act are they carrying out?
Step Two:	The teacher furthers asked students what act opposing to the act they saw in the Newspaper. The teacher uses the discussion to build the concept of political apathy
Step Four:	The teacher explained reason why people don't participate in politics
Step six:	The teacher summarizes the lesson.
Evaluation:	The teacher asks the student to listen to radio news or watch TV news listening any political issues and write what the issues all about.

APPENDIX III

INTRODUCTION LETTERS

DEPARTMENT OF EDUCATIONAL FOUNDATIONS AND CURRICULUM

Faculty of Education

AHMADU BELLO UNIVERSITY, ZARIA

Vice-Chancellor: **Professor Ibrahim Garba**, *B.Sc (Hons) Geology, M.Sc (Mineral Exploration) ABU, Ph.D Geology (London), D.I.C., FNMGS*

Head of Department: **Dr. Musa Idris Harbau**, *GRII (TC), NCE, B.A.(Ed), M.Ed Admin and Planning (BUK), PhD Admin and Planning (ABU)*

Our Ref: DEFC/S.25 Date: 07/06/2019

The Director,
Ministry of Education
Quality Assurance Authority,
Zaria Division

LETTER OF INTRODUCTION

The bearer, SORETIRE KABIRU ADISA with Registration Number P16EDEC8078 is a student in this department. He /She is carrying out research, being part of requirement for graduation, in M.ED. INSTRUCTIONAL TECHNOLOGY. He/She needs certain information in your organization. Kindly, allow him/her have access to information in your organization. The information obtained will be used for research purpose only. The topic of his/her research is

THE EFFECTS OF TECHNOLOGY INTEGRATION IN CIVIC EDUCATION ON STUDENTS ACHIEVEMENT AND ATTITUDE IN ZARIA EDUCATION ZONE OF KADUNA STATE NIGERIA

Thanks in anticipation of your kind response.

A. HOD PRS for your research std. for your action pls. further necessary 13/6/19

Yours sincerely,

07/06/2019

Dr. M.I. Harbau
Head of Department

Department of Educational Foundations and Curriculum A.B.U. Zaria

Ministry Of Education Science and Technology

Zonal Office Headquarters,

Zaria

Date 13/06/2019

The Principal / Proprietor,

Miss Kaura

Zaria.

LETTER OF INTRODUCTION

Sorefire Kabiru Adisa

The bearer is a P16EDEC8078 in the department of / from Educational Foundations & Curriculum ABU Zaria wish to conduct a research in the following areas:-

1. The effects of technology integration
2. in curriculum education on students' Achie
3. vement and attitude in Zaria
4. education Zone of Kaduna State
5. Nigeria.

I am directed to request you to allow him/ her the use of your facilities accordingly please.

PRINCIPAL
Kaura Islamic Sec. School
P. O. Box 1045
KAURA - ZARIA.

Received but the requirements cannot be met.

HOD
Research & Statistic
MOEST
Education Office Zaria.

Fatima D Ismail
H.O.D, P.R.S
For: - Director

Ministry Of Education Science and Technology

Zonal Office Headquarters,

Zaria

Date 13/06/2019

The Principal / Proprietor.

GCC Zaria

LETTER OF INTRODUCTION

Sorehire Kalsume Adiso

The bearer is a P1GEAEC8078 in the department of / from Educational Foundation & Curriculum ABU Zaria wish to conduct a research in the following areas:-

1. The effects of technology integration
2. in Civic education on students Achie-
3. vement and attitude in Zaria educa-
4. tion Zone of Kaduna State Nigeria.
5.

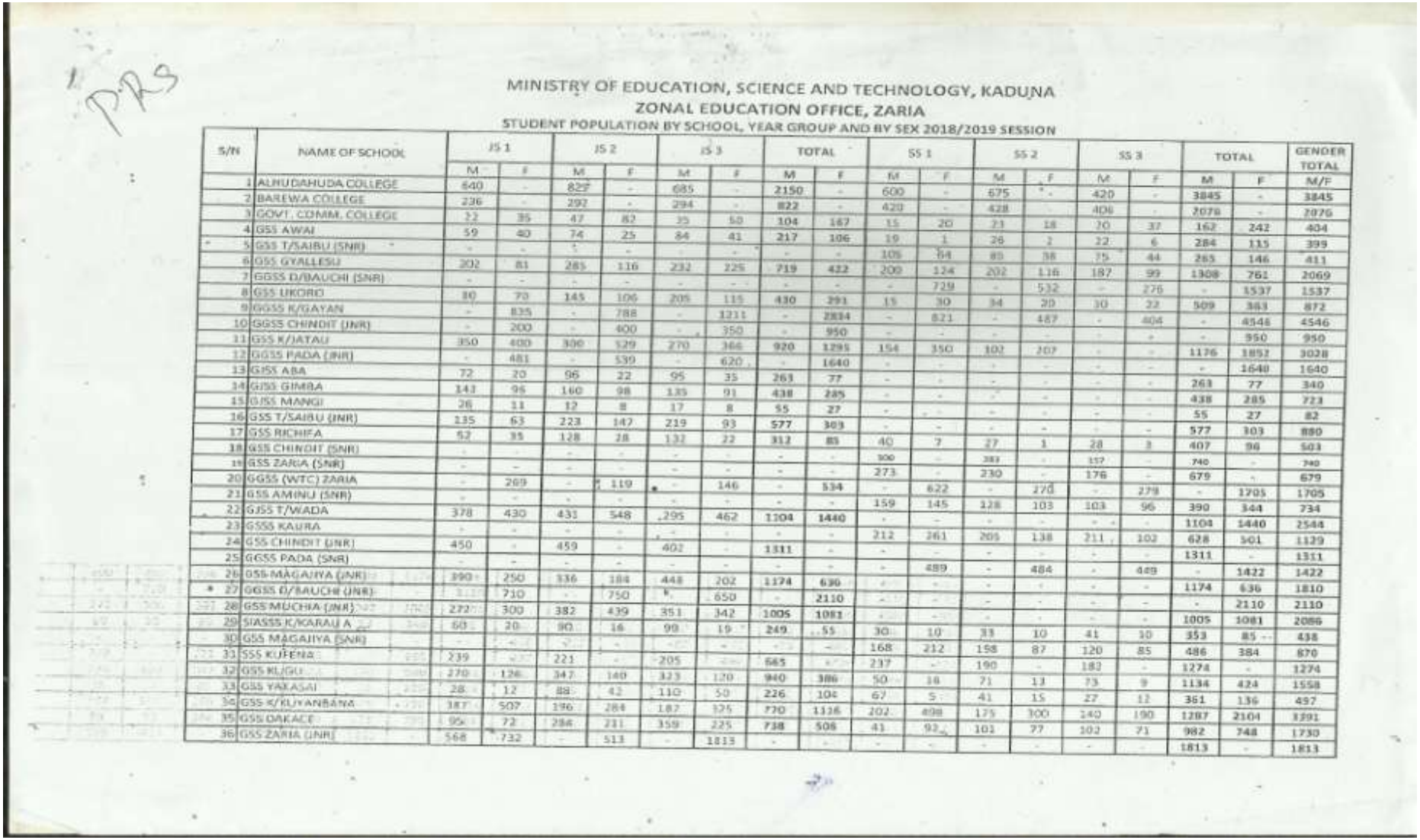
I am directed to request you to allow him/ her the use of your facilities accordingly please.

HOD
Research & Statistics
MOEST
Education Office Zaria

Fatima D Ismail
H.O.D, P.R.S
For - Director

APPENDIX IV:

POPULATION OF SENIOR SECONDARY SCHOOLS IN ZARIA EDUCATION ZONE



MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY, KADUNA
ZONAL EDUCATION OFFICE, ZARIA
STUDENT POPULATION BY SCHOOL, YEAR GROUP AND BY SEX 2018/2019 SESSION

S/N	NAME OF SCHOOL	JS 1		JS 2		JS 3		TOTAL		SS 1		SS 2		SS 3		TOTAL		GENDER TOTAL
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M/F
1	ALHUDAHUDA COLLEGE	640	-	827	-	685	-	2150	-	600	-	675	-	420	-	3845	-	3845
2	BAREWA COLLEGE	236	-	292	-	294	-	822	-	420	-	428	-	406	-	2076	-	2076
3	GOVT. COMM. COLLEGE	22	35	47	82	35	50	104	167	15	20	23	18	20	37	162	242	404
4	GSS AWAI	59	40	74	25	84	41	217	106	19	1	26	2	22	6	284	115	399
5	GSS T/SAIBU (SNR)	-	-	-	-	-	-	-	-	105	64	80	38	75	44	265	146	411
6	GSS GYALLESU	202	81	285	116	232	225	719	422	200	124	202	116	187	99	1308	761	2069
7	GGSS D/BAUCHI (SNR)	-	-	-	-	-	-	-	-	-	729	-	532	-	276	-	1537	1537
8	GSS UKORO	80	70	145	106	205	115	430	291	15	30	34	20	30	22	509	383	892
9	GGSS K/GAYAN	-	835	-	788	-	1211	-	2834	-	821	-	487	-	404	-	4546	4546
10	GGSS CHINDIT (JNR)	-	200	-	400	-	350	-	950	-	-	-	-	-	-	-	950	950
11	GSS K/JATAU	350	400	300	529	270	366	920	1295	154	350	102	207	-	-	1176	1852	3028
12	GGSS PADA (JNR)	-	481	-	599	-	620	-	1640	-	-	-	-	-	-	-	1640	1640
13	GJSS ABA	72	20	96	22	95	35	263	77	-	-	-	-	-	-	263	77	340
14	GJSS GIMBA	143	96	160	98	135	91	438	285	-	-	-	-	-	-	438	285	723
15	GJSS MANGU	26	11	12	8	17	8	55	27	-	-	-	-	-	-	55	27	82
16	GSS T/SAIBU (JNR)	135	63	223	147	219	93	577	303	-	-	-	-	-	-	577	303	880
17	GSS RICHIFA	52	35	128	28	132	22	312	85	40	7	27	1	28	3	407	96	503
18	GSS CHINDIT (SNR)	-	-	-	-	-	-	-	-	300	-	383	-	157	-	740	-	740
19	GSS ZARIA (SNR)	-	-	-	-	-	-	-	-	273	-	230	-	176	-	679	-	679
20	GGSS (WTC) ZARIA	-	269	-	119	-	146	-	534	-	622	-	270	-	279	-	1705	1705
21	GSS AMINU (SNR)	-	-	-	-	-	-	-	-	159	145	128	103	103	96	390	344	734
22	GJSS T/WADA	378	430	431	548	295	462	1104	1440	-	-	-	-	-	-	1104	1440	2544
23	GSSS KAURA	-	-	-	-	-	-	-	-	212	261	205	138	211	102	628	501	1129
24	GSS CHINDIT (JNR)	450	-	459	-	402	-	1311	-	-	-	-	-	-	-	1311	-	1311
25	GGSS PADA (SNR)	-	-	-	-	-	-	-	-	-	489	-	484	-	449	-	1422	1422
26	GSS MAGAJIYA (JNR)	390	250	336	184	448	202	1174	636	-	-	-	-	-	-	1174	636	1810
27	GGSS D/BAUCHI (JNR)	-	710	-	750	-	650	-	2110	-	-	-	-	-	-	-	2110	2110
28	GSS MUCHIA (JNR)	272	300	382	439	351	342	1005	1081	-	-	-	-	-	-	1005	1081	2086
29	SIASSS K/KARAU A	60	20	90	16	99	19	249	55	30	10	33	10	41	10	353	85	438
30	GSS MAGAJIYA (SNR)	-	-	-	-	-	-	-	-	168	212	158	87	120	85	486	384	870
31	SSS KUFENA	239	-	221	-	205	-	665	-	237	-	190	-	182	-	1274	-	1274
32	GSS KL/GU	270	126	347	140	323	120	940	386	50	18	71	13	73	9	1134	424	1558
33	GSS YAKASAI	28	12	88	42	110	50	226	104	67	5	41	15	27	12	361	136	497
34	GSS K/KUYANBANA	387	507	196	284	187	325	770	1116	202	698	175	300	140	190	1287	2104	3391
35	GSS DAKACE	96	72	284	231	359	225	738	508	41	92	101	77	102	71	982	748	1730
36	GSS ZARIA (JNR)	568	732	-	513	-	1813	-	-	-	-	-	-	-	-	1813	-	1813

37	GSS BOGARI	150	34	191	68	209	49	550	151	45	13	28	1	38	1	661	166	827
38	GJSS CHIKAJI	450	333	430	*305	453	300	1333	938	-	-	-	-	-	-	1333	938	2271
39	GJSS R/DOKO	607	443	539	482	587	422	1733	1347	-	-	-	-	-	-	1733	1347	3080
40	SIASSS K/KARAU B	365	515	313	343	338	384	1016	1245	140	217	120	144	127	169	1403	1775	3178
41	GGSS CHINDIT (SNR)	-	-	-	-	-	-	-	-	-	250	-	262	-	197	-	709	709
42	GSS K/DOKA	322	185	351	244	465	202	1338	631	200	292	195	154	-	-	1533	1077	2610
43	GSS AMINU (JNR)	223	82	568	277	400	252	1191	611	-	-	-	-	-	-	1191	611	1802
44	GSS T/JUKUN	227	398	357	403	262	291	846	1092	229	487	103	161	108	162	1286	1902	3188
45	GSS DINYA	72	25	143	41	113	23	328	89	49	13	42	4	31	-	450	106	556
46	GSS MUCHIA (SNR)	-	-	-	-	-	-	-	-	223	341	196	263	84	119	503	723	1226
47	GJSS MATARI	67	5	58	14	60	4	185	23	-	-	-	-	-	-	185	23	208
48	GJSS KINKIBA	87	52	141	37	211	36	439	125	-	-	-	-	-	-	439	125	564
	TOTAL	7724	7135	9244	8335	8793	6601	25770	22704	4193	6109	3941	3907	2908	2842	36803	35562	72365

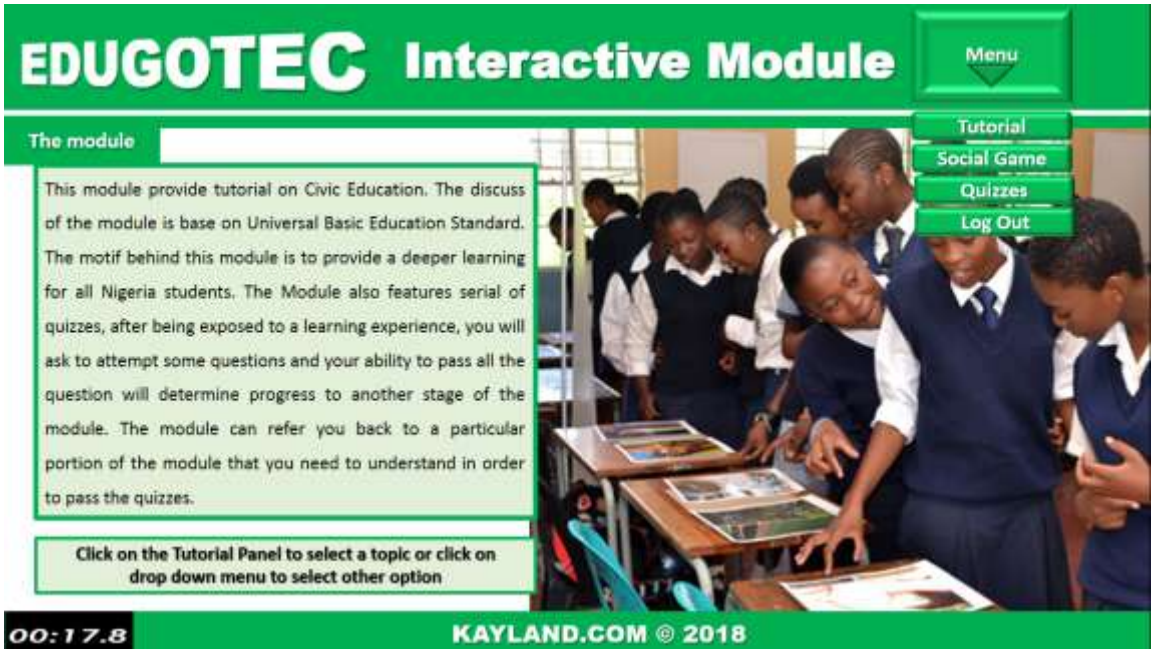
HOU
Research & Statistics
MOEST
Headline Office Zaria
13/06/2019

APPENDIX V

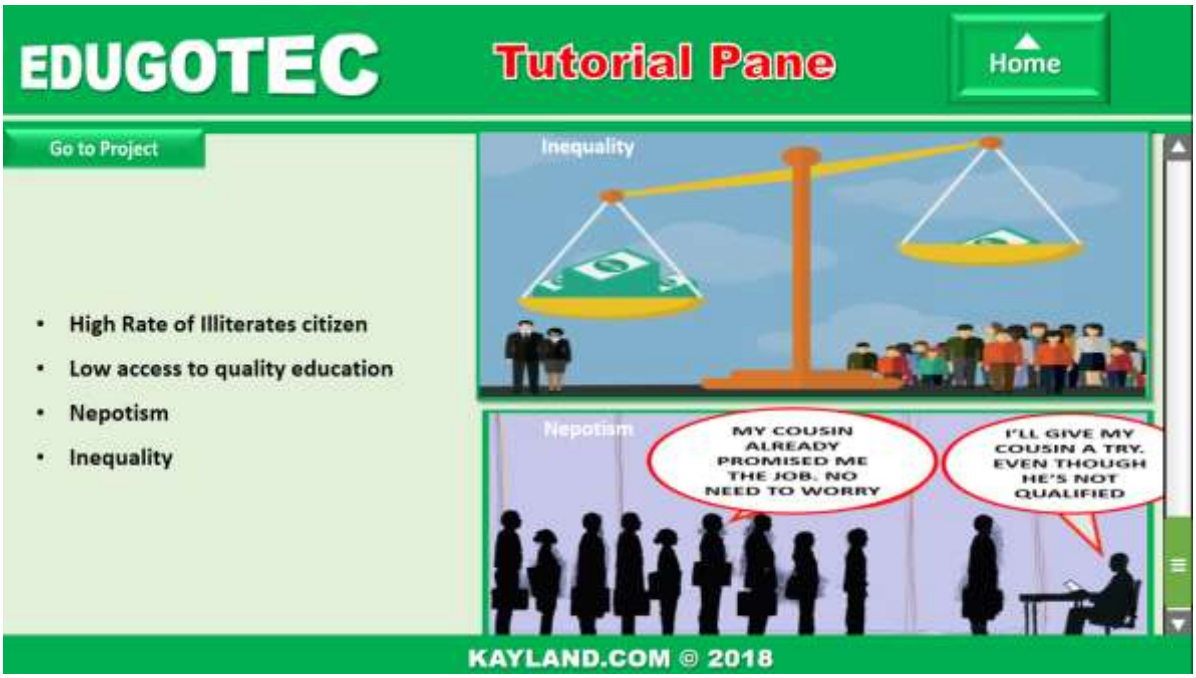
SAMPLED SLIDES FROM LINEAR POWERPOINT

APPENDIX VI

SAMPLED INTERFACE FROM INTERACTIVE POWERPOINT

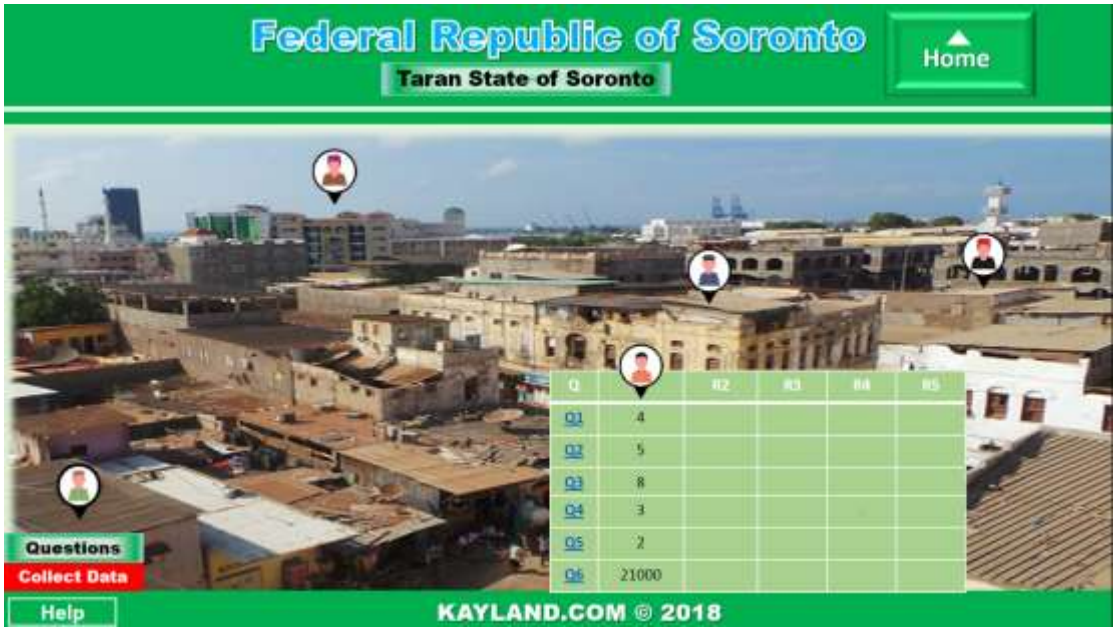



EDUGOTEC Interactive Module
Your Nation Building effort has been interrupted.
You added destructive material. Click on material details to know why the materials destroy the building.
click on ESC or try again Button to restart.
Try again
Details


EDUGOTEC
Tutorial Pane
Home
Go to Project
High Rate of Illiterates citizen
Low access to quality education
Nepotism
Inequality
Inequality
Nepotism
MY COUSIN ALREADY PROMISED ME THE JOB. NO NEED TO WORRY
I'LL GIVE MY COUSIN A TRY. EVEN THOUGH HE'S NOT QUALIFIED
KAYLAND.COM © 2018

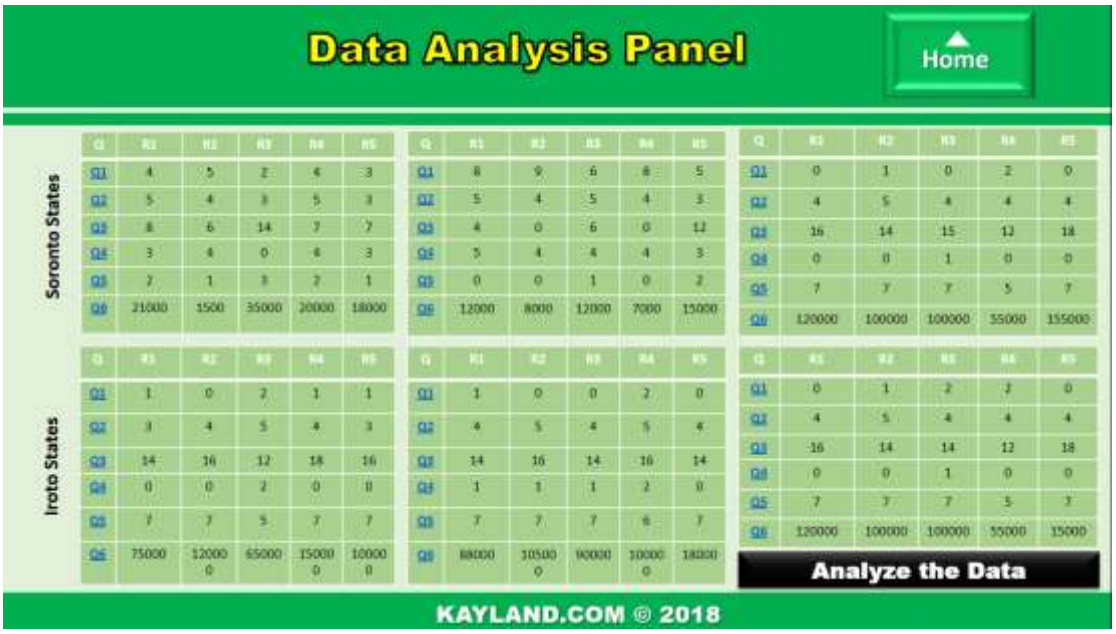

Start
Survey of National Development
Home
Instruction
FEDERAL REPUBLIC OF SORONTO
Taran State of Soronto
Magila State of Soronto
Konu State of Soronto
FEDERAL REPUBLIC OF IROTO
Lagi State of Iroto
Dendi State of Iroto
Alisa State of Iroto
Questions
KAYLAND.COM © 2018

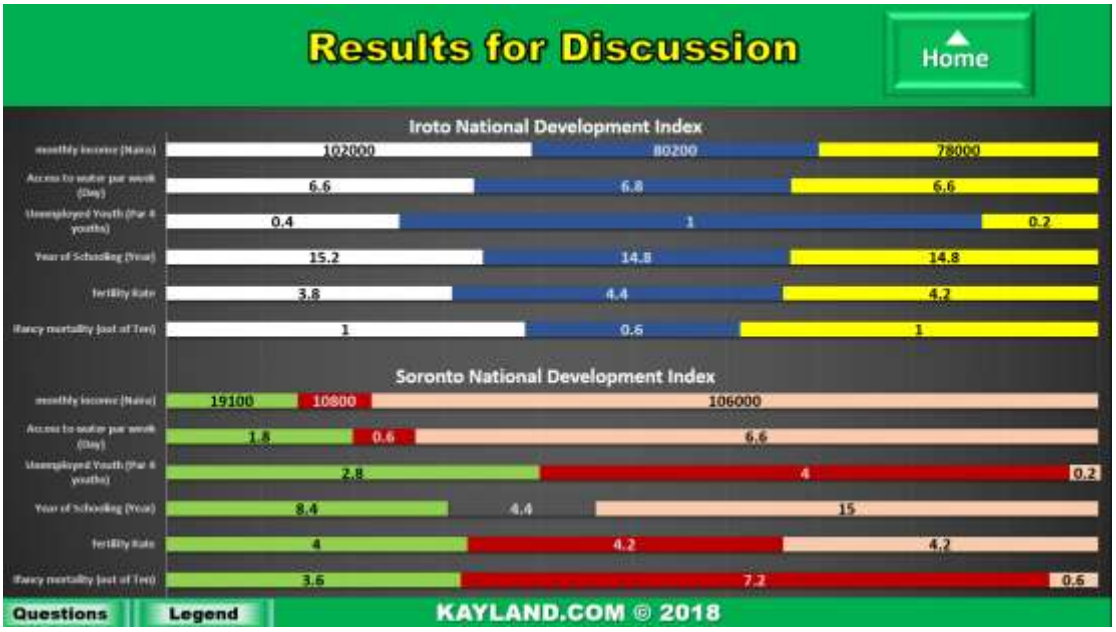

Start
Survey of National Development
Home
Instruction
FEDERAL REPUBLIC OF SORONTO
Taran State of Soronto
Magila State of Soronto
Konu State of Soronto
FEDERAL REPUBLIC OF IROTO
1. Which of the two countries is Nationally developed and why?
2. Which State is the most poorest state and why are they poor?
3. What is the Relationship between Year of Schooling and income?
4. What is relationship between income and access to safe water?
5. What is the effect of unfair distribution of country's wealth?
6. Which of the country do you wish to belong and why
ate of Iroto
Alisa State of Iroto
Questions
KAYLAND.COM © 2018

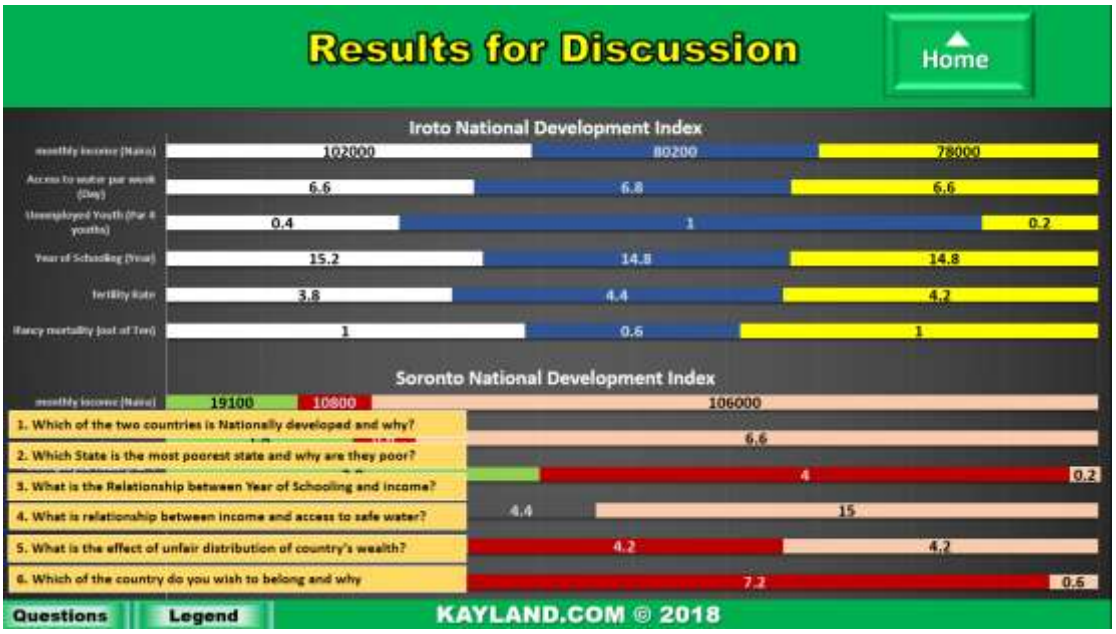

Federal Republic of Soronto
Taran State of Soronto
Home
Q
R2
R3
R4
R5
Q1 4
Q2 5
Q3 8
Q4 3
Q5 2
Q6 21000
Questions
Collect Data
Help
KAYLAND.COM © 2018


Save Data
Federal Republic of Soronto
Taran State of Soronto
Home
Q
Q1 4 5 2 4 3
Q2 5 4 3 5 3
Q3 8 6 14 7 7
Q4 3 4 0 4 3
Q5 2 1 3 2 1
Q6 21000 1500 35000 20000 18000
Questions
Collect Data
Help
KAYLAND.COM © 2018


Save Data
Federal Republic of Iroto
Alisa State of Iroto
Home
Congratulation!
You have successfully collected the data needed from 6 sample states
from two countries: Soronto and Iroto
Click on upload data to upload the collected data to analysis panel
Upload Data
Please Wait, your data is uploading

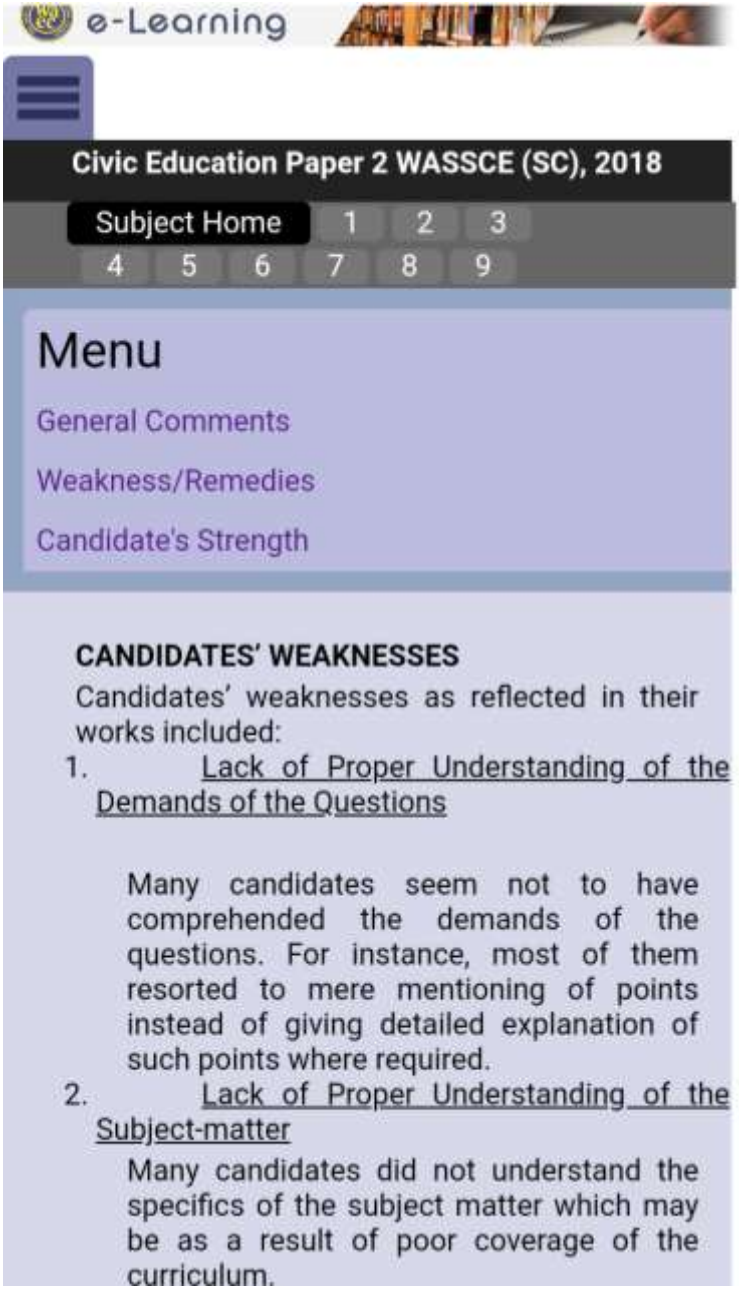

Data Analysis Panel
Home
Soronto States
Iroto States
Analyze the Data
KAYLAND.COM © 2018


Results for Discussion
Home
Iroto National Development Index
monthly income (Naira)
102000
80200
78000
Access to water per week (Day)
6.6
6.8
6.6
Unemployed Youth (Per 4 youths)
0.4
1
0.2
Year of Schooling (Year)
15.2
14.8
14.8
fertility Rate
3.8
4.4
4.2
Ifancy mortality (out of Ten)
1
0.6
1
Soronto National Development Index
monthly income (Naira)
19100
10800
106000
Access to water per week (Day)
1.8
0.6
6.6
Unemployed Youth (Per 4 youths)
2.8
4
0.2
Year of Schooling (Year)
8.4
4.4
15
fertility Rate
4
4.2
4.2
Ifancy mortality (out of Ten)
3.6
7.2
0.6
Questions
Legend
KAYLAND.COM © 2018


Results for Discussion
Home
Iroto National Development Index
monthly income (Naira)
102000
80200
78000
Access to water per week (Day)
6.6
6.8
6.6
Unemployed Youth (Per 4 youths)
0.4
1
0.2
Year of Schooling (Year)
15.2
14.8
14.8
fertility Rate
3.8
4.4
4.2
Ifancy mortality (out of Ten)
1
0.6
1
Soronto National Development Index
monthly income (Naira)
19100
10800
106000
1. Which of the two countries is Nationally developed and why?
2. Which State is the most poorest state and why are they poor?
3. What is the Relationship between Year of Schooling and income?
4. What is relationship between income and access to safe water?
5. What is the effect of unfair distribution of country's wealth?
6. Which of the country do you wish to belong and why
6.6
4
0.2
4.4
15
4.2
4.2
7.2
0.6
Questions
Legend
KAYLAND.COM © 2018

APPENDIX VII

WAEC CHIEF EXAMINER REPORT ON CIVIC EDUCATION-2018



APPENDIX VIII

SPSS OUTPUT FOR RELIABILITY TEST

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

a. List-wise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.852	.873	18

Item Statistics

	Mean	Std. Deviation	N
I like the topics in civic education	3.0500	1.05006	20
I enjoy the activities we do in Civic Education Class	2.1000	.64072	20
I do not like Civic Education	2.3000	.73270	20
What I learn in civic Education are not interesting	3.0500	1.05006	20
I am happier in a civic education class than in any other class	2.1000	.64072	20
When I hear civic education, I have a feeling of dislike	3.1000	1.16529	20
I dislike Civic Education class because is dull and boring	2.8500	.93330	20
I like Civic Education because is fascinating and fun.	2.1000	.64072	20
Civic Education makes me feel uncomfortable, restless, irritable, and impatient	2.8000	1.00525	20
I like Civic education because it teaches what happens around us.	3.0500	1.05006	20

In civic education I try to do as well as I can	2.1000	.64072	20
I will never make mistake of registering civic education as one of my JAMB subjects	2.5500	1.09904	20
I find it difficult to comprehend what is being taught in Civic education Class, I don't have hope of passing	3.0500	1.05006	20
I found Civic education to be too simple to study at high institution	2.1000	.64072	20
What I'm being taught in Civic education is important in everyday life	3.1500	1.18210	20
I wonder why civic education is being taught in school	3.0500	1.05006	20
I don't see any need to waste my time in study civic education as the subject is not require in workplace	2.3000	.73270	20
Understand of civic education is capable of making me an effective citizen	2.6500	.87509	20

APPENDIX IX

SPSS OUTPUT FOR DESCRIPTIVE AND INFERENTIAL STATISTICS

```
UNIANOVA Civic BY Group WITH Pretest
  /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
  /EMMEANS=TABLES(Group) WITH(Pretest=MEAN) COMPARE ADJ(LSD)
  /PRINT=ETASQ HOMOGENEITY DESCRIPTIVE PARAMETER
  /CRITERIA=ALPHA(.05)
  /DESIGN=Pretest Group.
```

Univariate Analysis of Variance

Notes

Output Created		15-AUG-2019 02:30:16
Comments		
Input	Data	E:\PROJECT\My Data AnalysisRE2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	154
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA Civic BY Group WITH Pretest /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Group) WITH(Pretest=MEAN) COMPARE ADJ(LSD) /PRINT=ETASQ HOMOGENEITY DESCRIPTIVE PARAMETER /CRITERIA=ALPHA(.05) /DESIGN=Pretest Group.
Resources	Processor Time	00:00:00.08
	Elapsed Time	00:00:00.09

[DataSet1] E:\PROJECT\My Data AnalysisRE2.sav

Between-Subjects Factors

		Value Label	N
Groups	1.00	IPP	44
	2.00	LPP	54
	3.00	NDT	56

Descriptive Statistics

Dependent Variable: Posttest

Groups	Mean	Std. Deviation	N
IPP	39.0455	7.85317	44
LPP	34.8519	7.40578	54

NDT	33.3571	7.21722	56
Total	35.5065	7.77817	154

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Posttest

F	df1	df2	Sig.
.683	2	151	.507

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Pretest + Group

Tests of Between-Subjects Effects

Dependent Variable: Posttest

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6565.213[a]	3	2188.404	121.972	.000	.709
Intercept	309.877	1	309.877	17.271	.000	.103
Pretest	5732.300	1	5732.300	319.493	.000	.681
Group	485.620	2	242.810	13.533	.000	.153
Error	2691.281	150	17.942			
Total	203406.000	154				
Corrected Total	9256.494	153				

a. R Squared = .709 (Adjusted R Squared = .703)

Parameter Estimates

Dependent Variable: Posttest

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	4.447	1.714	2.595	.010	1.061	7.833	.043
Pretest	2.086	.117	17.874	.000	1.856	2.317	.681
[Group=1.00]	4.205	.857	4.905	.000	2.511	5.899	.138
[Group=2.00]	3.051	.813	3.755	.000	1.446	4.657	.086
[Group=3.00]	0[a]	.	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Estimated Marginal Means

Groups

Estimates

Dependent Variable: Posttest

Groups	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
IPP	37.440[a]	.645	36.166	38.714
LPP	36.286[a]	.582	35.136	37.436
NDT	33.235[a]	.566	32.117	34.354

a. Covariates appearing in the model are evaluated at the following values: Pretest = 13.7987.

Pairwise Comparisons

Dependent Variable: Posttest

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
IPP	LPP	1.154	.877	.190	-.579	2.886
	NDT	4.205*	.857	.000	2.511	5.899

LPP	IPP	-1.154	.877	.190	-2.886	.579
	NDT	3.051*	.813	.000	1.446	4.657
NDT	IPP	-4.205*	.857	.000	-5.899	-2.511
	LPP	-3.051*	.813	.000	-4.657	-1.446

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: Posttest

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	485.620	2	242.810	13.533	.000	.153
Error	2691.281	150	17.942			

The F tests the effect of Groups. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Univariate Analysis of Variance

Notes

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Comments		
Input	Data	E:\PROJECT\My Data AnalysisRE2.sav
	Active Dataset	DataSet1
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	154
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA Total_Negative_reverse BY Group WITH Pretest /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /EMMEANS=TABLES(Group) WITH(Pretest=MEAN) COMPARE ADJ(LSD) /PRINT=ETASQ HOMOGENEITY DESCRIPTIVE PARAMETER /CRITERIA=ALPHA(.05) /DESIGN=Pretest Group.
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.17

[DataSet1] E:\PROJECT\My Data AnalysisRE2.sav

Between-Subjects Factors

		Value Label	N
Groups	1.00	IPP	44
	2.00	LPP	54
	3.00	NDT	56

Descriptive Statistics

Dependent Variable: Total_Negative_reverse

Groups	Mean	Std. Deviation	N
IPP	59.7727	4.09687	44
LPP	53.6296	3.93962	54
NDT	38.8393	4.26733	56
Total	50.0065	9.71321	154

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Total_Negative_reverse

F	df1	df2	Sig.
.324	2	151	.724

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Pretest + Group

Tests of Between-Subjects Effects

Dependent Variable: Total_Negative_reverse

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	11890.056[a]	3	3963.352	233.602	.000	.824
Intercept	15949.956	1	15949.956	940.099	.000	.862
Pretest	.936	1	.936	.055	.815	.000
Group	11847.160	2	5923.580	349.139	.000	.823
Error	2544.937	150	16.966			
Total	399535.000	154				
Corrected Total	14434.994	153				

a. R Squared = .824 (Adjusted R Squared = .820)

Parameter Estimates

Dependent Variable: Total_Negative_reverse

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	38.464	1.692	22.735	.000	35.121	41.806	.775
Pretest	.027	.115	.235	.815	-.200	.255	.000
[Group=1.00]	20.915	.833	25.095	.000	19.268	22.562	.808
[Group=2.00]	14.802	.787	18.802	.000	13.247	16.358	.702
[Group=3.00]	0[a]	.	.	.	.	.	.

a. This parameter is set to zero because it is redundant.

Estimated Marginal Means

Groups

Estimates

Dependent Variable: Total_Negative_reverse

Groups	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound

IPP	59.755[a]	.625	58.520	60.991
LPP	53.643[a]	.563	52.530	54.756
NDT	38.840[a]	.550	37.753	39.928

a. Covariates appearing in the model are evaluated at the following values: Pretest = 13.9286.

Pairwise Comparisons

Dependent Variable: Total_Negative_reverse

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
IPP	LPP	6.113*	.846	.000	4.440	7.785
	NDT	20.915*	.833	.000	19.268	22.562
LPP	IPP	-6.113*	.846	.000	-7.785	-4.440
	NDT	14.802*	.787	.000	13.247	16.358
NDT	IPP	-20.915*	.833	.000	-22.562	-19.268
	LPP	-14.802*	.787	.000	-16.358	-13.247

Based on estimated marginal means

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

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: Total_Negative_reverse

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	11847.160	2	5923.580	349.139	.000	.823
Error	2544.937	150	16.966			

The F tests the effect of Groups. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Table of Specification